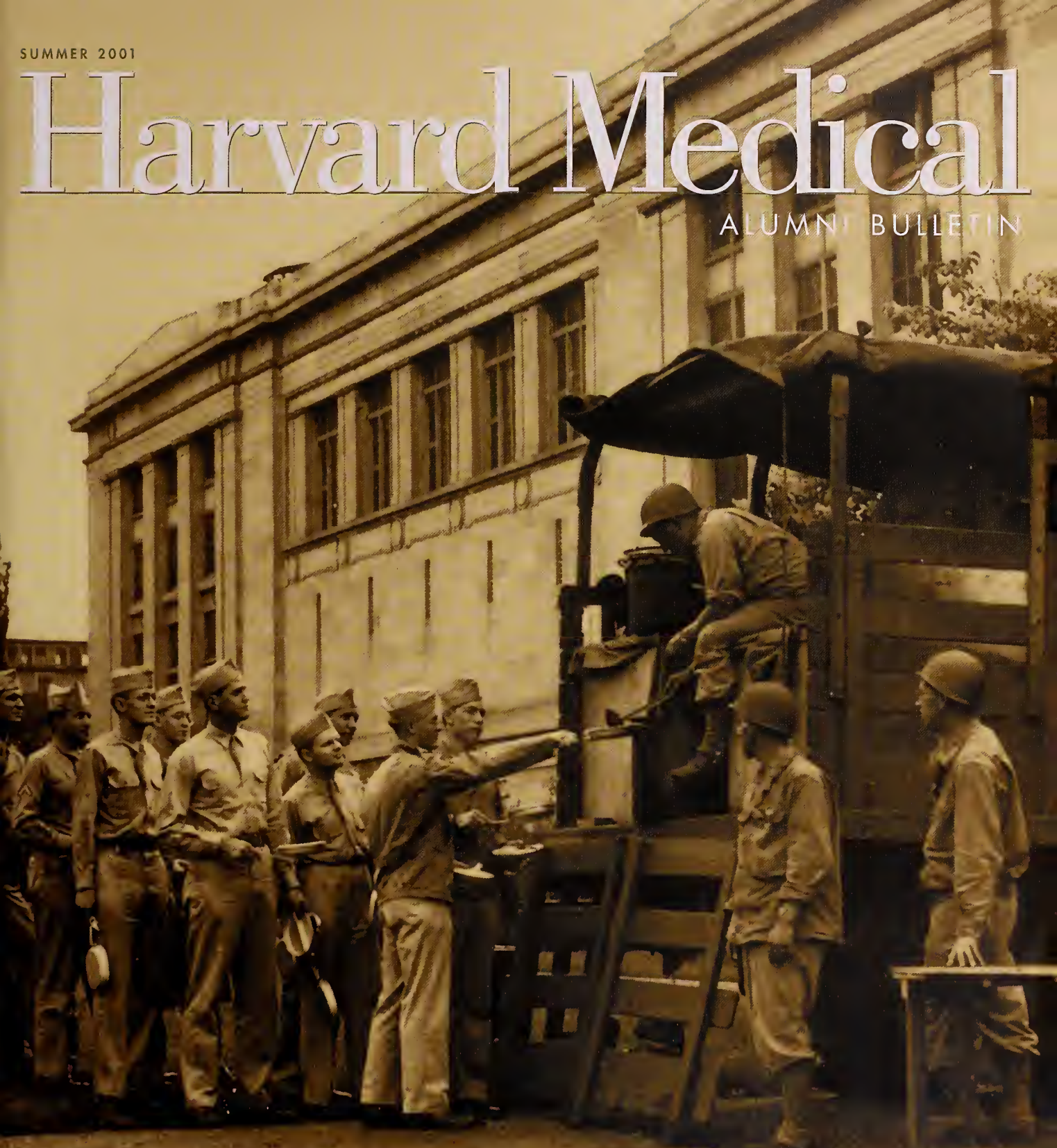
SUMMER 2001

Harvard Medical

ALUMNI BULLETIN



WHAT DID YOU DO IN THE WAR, DOCTOR?

Harvard physicians reflect on their experiences during World War II



HISTORY

1900

Children's Hospital staff caring for some of Boston's smallest patients

SUMMER 2001 • VOLUME 75, NUMBER 1

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Cover photograph of Harvard medical student-soldiers in the Quadrangle, courtesy of the Harvard Medical Library in the Francis A. Countway Library of Medicine

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In This Issue

MY EARLIEST MEMORIES ARE OF WORLD WAR II. PERHAPS THE FIRST IS OF being given a choice between the Navy and the Army. In a very small flush of post-Depression prosperity, my parents decided to replace the wallpaper in our two-bedroom bungalow. Soon after I had graduated from the crib to a "real" bed, I was asked to pick a pattern for my room. The sample I preferred had a blue background with battleships sailing across it, but also a two-inch tear on the right side. The other, showing a tan sky with fighter planes, was not torn. I chose the tan paper with the airplanes because I thought that the sample would be exactly reproduced on the walls of my room, and I didn't want a two-inch tear every few feet.

Over a year later I was in my "real" bed almost recovered from the measles. Lying there under the now-familiar airplanes, the room dark to protect my eyes, I listened to my mother read me a story. Halfway into it, her reading was interrupted by a cacophony of sirens and horns. She stiffened, stood up, and walked to the window. In a West Coast town, humming with Navy yards, windows were regarded as dangerous places, covered not only for measles, but also for fear of air raids. She stood there for a moment and then lifted the shade all the way up and shouted, "The war's over! The war's over!" Surrounded by my fighter planes, I asked, "What war? What's a war, Mommy?"

For reasons of luck and privilege, I have never learned what a war is in the painful way that many of my teachers and mentors, some of my patients, and a few of my friends have had to. Nor was I ever told much. Only now, as I myself cross over from middle to old age, and the generation of World War II veterans is diminishing by some estimates at the rate of a thousand a day, am I beginning to realize how little I was told about the war and how much less I asked. I knew that one of my favorite teachers in high school had an arm that didn't work well; I didn't know that one of my favorite teachers in college had been decorated. At HMS, where in my time many of the faculty were veterans of the Second World War, I managed to be only politely aware of that fact.

There could by many reasons for this—my own callowness prominent among them. But another reason is also apparent: the extraordinary modesty of the "greatest generation." In this issue, as we continue our account of Harvard Medical School in the war, several alumni describe their war experiences and Associate Editor Beverly Ballaro gives us a brief history of the Quadrangle as a barracks. It had not been my habit to contradict the late Bill McDermott '42, but when he told the *Bulletin*, "We weren't heroes at all. We were just doing what was right and what had to be done," I had to respectfully dissent.

William Ira Bennett

READERS TAKE NOTE

We've Moved. The *Bulletin* has moved to the Landmark Center at 401 Park Drive, Boston, MA 02215. Our official address, however, remains 25 Shattuck Street, Boston, MA 02115. Our new phone number is 617-384-8900; our fax number is 617-384-8901; and our email address is bulletin@hms.harvard.edu.



PHOTO: COURTESY OF BETTY ANNE JOHNSON

PICTURE PERFECT

While perusing my Winter 2001 issue, I came across "Quest for the West" by Betty Anne Johnson '79 and had read most of the article before I realized that I knew the author! The photography is great—my wife is a black-and-white photographer, so I like to think I at least have an eye for this stuff—and Betty Anne's grandmother is beautiful, all six feet of her. I just finished reading John Grisham's semi-autobiographical novel *A Painted House*, and the photos Betty Anne included are very reminiscent of the images he portrays, even though he writes about cotton fields in Arkansas in the early 1950s.

I have always said that the *Bulletin* is by far the best alumni magazine I get, and this article is further fuel for my argument.

JOHN M. DORMAN '67
MENLO PARK, CALIFORNIA

Guiding Light

I read with great sadness and vivid remembrance Charles Krauthammer's tribute to Hermann Lisco in the winter issue of the *Bulletin*. Just as he had with Dr. Krauthammer, Hermann had an enormous effect on my life and career in medicine. Originally in the Class of 1973 and interested in psychiatry, I was waylaid from medical school by a combination of the turmoil of the time (the Vietnam War was at its height, as were protests and disaffection with the American system) and my own neurotic uncertainties.

There was a saying at the time that the only thing harder than getting into Harvard Medical School was getting out, and as I became increasingly disaffected with the medical studies that lay on the route to psychiatry, I decided to take a leave of absence to straighten out my mind and motivation. To this end, I had to visit with numerous deans and compose explanations and a plan for a leave; everyone had difficulty understanding why a medical student who was doing at least passable work wanted to leave. I can remember the late Joseph Gardella, who was dean of students at the time, finally acknowledging that this was not such a bad idea after all, as he approved it.

On starting my leave, I was referred to Hermann as someone who would watch over me during this absence and otherwise help. I can recall from our first meeting his snow-white hair, bright eyes, keen attention, curiosity, very gentle way, knowledge of other prodigal medical students, and reflections on his own life, among which were that he also had taken a few years off from his studies, to be treated in a tuberculosis sanatorium.

The yearlong leave came and went, and I ultimately withdrew, with Hermann's sanction and with him saying, "It just wasn't time to return." During my absence I worked as a longshoreman on the Boston wharves and then with a health planning agency, all the while meeting every few months with Hermann, who accepted and understood everything. These were extremely supportive meetings on his part; he was always gentle, willing to listen and share from his own experiences, nonjudgmental and nondirective, even though he was my sole liaison with the medical school. He was enormously important in keeping the possibility of a career in medicine still in my mind.

Ultimately I returned to HMS, much the wiser from my life experiences. Herman facilitated a reacceptance to medical school and I graduated in 1977. I realized my ambition to become a psychiatrist and every six months or so, until I moved away from Boston in 1989, I met with him and his wife at their home in Brookline to share my experiences and success. He was always eager to see me and chat, and was never too rushed or too busy.

I visited him a year or so before his death when he was wheelchair-bound by Parkinson's disease and living in an extended-care facility. His eyes were still bright and his mind inquisitive. "Isn't it ironic," he quipped, "that I, who have spent so much time studying institutions, should end up dependent on one?"

It is to my mind a reflection of the great depth and strength of HMS that it was able to provide for a physician and person of Hermann's sensitivities to be in a place to counsel and assist medical students such as myself in this unorthodox and very personal way. I was blessed to have met and been guided by Hermann, and I hold him in my mind and heart as one who helped me enormously in my darkest hours. I will sorely miss him.

RICHARD B. KRUEGER '77
NEW YORK, NEW YORK

For the Record

I thoroughly enjoyed the article on Geoff Tabin '84 in the winter issue. His mountaineering exploits and sheer energy are impressive. I agree with his statement, "I have always valued quality over size. I think it's a shame when people approach mountains simply wanting to get to the top rather than to have the experience of really climbing." It's hard to avoid pointing out, however, that earlier in the article the writer notes that Dr. Tabin was the fourth person in the world to climb the highest peaks on all seven continents. In view of that feat, either Dr. Tabin's views have changed as he's aged or the quote is a little disingenuous. Elbrus (Europe), Kilimanjaro (Africa), Kosciusko (Australia), and even Aconcagua (South America) by the normal route are not mountains that one climbs in search of technical difficulty, nor are they necessarily the most challenging peaks on their respective continents.

JERRY E. LECLAIRE '80
SPOKANE, WASHINGTON

Dead Silence

I find the *Bulletin* filled with interesting articles, informative and well-presented. However, I am a bit surprised that in the obituaries you almost never note the cause of death. Is there some sort of taboo here? Perhaps it's just a morbid interest generated at HMS, but I always like to know why someone dies. Most newspapers don't hesitate to burble some platitude like "died after a long, heroic battle against..." You're dealing with doctors here, and surely we have more than a casual interest in how we all eventually lose our battles, personally and professionally. You might even inspire a more interesting, thought-provoking approach to the journalism of the obituary page. But keep up the good work on the rest of your writing.

ROGER MOSELEY '59
PRINCETON, NEW JERSEY

Editor's note: Your letter prompted us to revisit our policy. After careful consideration, we have decided that, beginning with this issue, we will include the cause of death whenever the information is provided to us.

Wake Up Call

In the winter issue of the *Bulletin*, Dr. Robert Stickgold elegantly demonstrated the importance of sleep in learning. How nice it would be if our own field would attend to this lesson.

MARCIA ZUCKERMAN '96
CHARLESTOWN, MASSACHUSETTS

Defining Our Dreams

The article in the winter issue about images experienced on falling asleep reminded me that when we were taking pathology at HMS in the late 1950s I used to see histological images fairly regularly. They were quite realistic, but I can't recall whether I actually identified the specific tissues. At the time, an instructor pointed out that although we were taught objective criteria for identifying tissues, we would rarely use them except to support an identification already made from the fact that, for example, "It looks like a liver." Perhaps my images reflected the neurophysiological process of abstracting and storing what liver "looks like." It would seem incautious, however, to generalize such visual images as "dreaming," because other aspects of dreaming—emotions, story, sound—might be quite different neurophysiologically.

C. DENNIS THRON '59
HANOVER, NEW HAMPSHIRE



PHOTO COURTESY OF GEOFF TABIN

MAD SCRAMBLE: Geoff Tabin on the East Face of Everest, once considered unclimbable.

The Bulletin *welcomes letters to the editor. Please send letters by mail* (Harvard Medical Alumni Bulletin, *25 Shattuck Street, Boston, Massachusetts 02115); fax (617-384-8901); or email (bulletin@hms.harvard.edu). Letters may be edited for length or clarity.*



PHOTO: DAVID L. RYAN/BOSTON GLOBE

The Envelope Please...

LIKE FOURTH-YEAR MEDICAL STUDENTS across the country, HMS students crowded around the door to the Registrar's Office on March 22—Match Day—to find out where they would be spending their residency. After graduation, 94 percent of the Class of 2001 began clinical internships, more than half at HMS teaching hospitals. The most popular residencies were those in primary care—family practice, internal medicine, medicine/pediatrics, pediatrics, and obstetrics/gynecology—which attracted 56 percent of those seeking placement.

Anesthesia

Suma Dutta
Stanford University Programs
Matthew McCotter
University of California, San Francisco
Daryl Oakes
Brigham and Women's Hospital

Dermatology

Michelle Bush
Boston University Medical Center
Anne Chapas
Boston University Medical Center
Sola Cheng
Dartmouth–Hitchcock Medical Center, Hanover, NH
Caroline Choi
Massachusetts General Hospital
Peter Lio
Massachusetts General Hospital
Diego Marra
Massachusetts General Hospital
Stephen Richardson
Hospital of the University of Pennsylvania, Philadelphia

Emergency Medicine

Kerri Armon
Johns Hopkins Hospital
Michelle Charfen
Harbor–UCLA Medical Center, Torrance, CA
David Gordon
The University Hospital, Cincinnati, OH
Gabriel Ledger
University of New Mexico Program, Albuquerque
Dustin Paz
University of Southern California, Los Angeles
Christine Tsien
Brigham and Women's Hospital

Family Practice

Lia Bruner
Boston University Medical Center
Stephen Buttenwieser
Greater Lawrence Family Health Center, Lawrence, MA
Esiquio Casillas
White Memorial Medical Center, Los Angeles
Nicholas Weiss
University of California, San Francisco

Family Practice–Psychiatry

Murat Akalin
University of California, San Diego Medical Center

General Surgery

Ibrahim Abdullah
Hospital of the University of Pennsylvania, Philadelphia
Erich Grethel
University of California, San Francisco
Jason Hall
Massachusetts General Hospital
David Joyce
Johns Hopkins Hospital
Mary Kwaan
Brigham and Women's Hospital
Walter Lech
Beth Israel Deaconess Medical Center
Raul Ruiz
Beth Israel Deaconess Medical Center

Internal Medicine

Larry Allen
Massachusetts General Hospital
Patricia Bachiller
Brigham and Women's Hospital
Meghan Baker
Massachusetts General Hospital
Ishir Bhan
Massachusetts General Hospital
Paul Bollyky
Brigham and Women's Hospital
Paige Brennan
Yale–New Haven Hospital
Andy Chen
Stanford University Programs
Jason Gaglia
Beth Israel Deaconess Medical Center
David Ganz
UCLA Medical Center
Daniel Guerra
Brigham and Women's Hospital
Julia Hayes
New York Presbyterian Hospital (Columbia)
Ivan Ho
Massachusetts General Hospital



PHOTO: JEFF CLEARY

MEET YOUR MATCH: Marco Perez, Ishir Bhan, and Deanna Nguyen were all offered residencies at Massachusetts General Hospital.

Lin Jia
UCLA Medical Center
Calette Knight
New York Presbyterian Hospital (Columbia)
Gerald Kaenig
University of Michigan Hospitals
Ian Kranish
Mount Sinai Hospital, New York, NY
Susan Kuhn
Jahns Hapkins Hospital
Marcia Lux
New York Presbyterian Hospital (Columbia)
Andy Miller
New York Presbyterion Hospitol (Columbia)
David Miller
Beth Israel Deaconess Medicol Center
Jeffrey Munsan
Yole–New Hoven Haspital
Deanna Nguyen
Massachusetts General Haspital
Reena Pande
Brigham and Women's Hospitol
Lee Peng
Massachusetts Generol Hospital
Marca Perez
Mossochusetts Generol Hospitol
Elizabeth Phillips
Brigham and Wamen's Hospital
Angela Ragers
Brigham ond Women's Haspital
Fidencia Saldana
Brighom ond Women's Hospitol
Jadi Savitz
Haspital af the University af Pennsylvania, Philodelphia
Rabert Schloss
Navol Medical Center, San Diega, CA
Elizabeth Springer
Stonfard University Progroms
Avni Thakare
Massachusetts General Haspital
Gisela Tarres
Baylor Callege af Medicine, Haustan, TX
Tracy Wang
Brigham and Women's Haspital
Martin Were
Brigham and Wamen's Haspital
Yvanne Wilsan
New York Presbyterion Haspital (Columbio)
Brian Walpin
Brigham ond Wamen's Haspitol

Internal Medicine/ Primary Care

Samuel Brawn
Massachusetts General Haspital
Shelly-Ann Davidsan Fluker
Brighom and Wamen's Hospitol
Eileen Kim
University of Califarnia, San Francisco
James Marrill
Massachusetts Generol Hospitol
Barbara Saatkamp
New York Presbyterion Haspital (Columbia)
Arnald Seta
Santa Clara Volley Medicol Center, San Jase, CA
Eytan Szmuilawicz
Brighom and Wamen's Haspital
Sheri Weiser
University of Califarnio, Son Froncisco
William Walfe
University af Califarnia, San Francisca

Medicine/Pediatrics

David Harrisan
Harvard Cambined Medicine/Pediatrics
Jennifer Pippins
Harvord Combined Medicine/Pediatrics
Rey Ramas
Yale–New Hoven Hospital

Neuralagy

Doris Chacan
University af Califarnia, Las Angeles
Ray Hamiltan
University af Pennsylvonio, Philodelphio
Jeremiah Scharf
Harvard/Massachusetts Generol Hospital ond Brighom ond Wamen's Haspital

Neurosurgery

Clark Chen
Harvard/Massachusetts Generol Haspital
Suresh Magge
University af Pennsylvanio, Philodelphio
Sathish Subbaiah
Harvord/Brighom ond Wamen's Haspitol

Ob/Gyn

Colleen Brownell
Duke University Medicol Center, Durhom, NC
Lisa Callegari
University of Colifornio, Son Froncisco
Shireen Donaldson
Yole–New Hoven Hospitol
Catherine Friedman
University of Colifornio, Son Froncisco
Elizabeth Lipson
Mount Sinoi Hospitol, New York, NY
Erica Marsh
Brighom ond Women's Hospitol
Rebecca Perkins
Brighom ond Women's Hospitol
Xun Zhou
Yole–New Hoven Hospitol

Ophthalmology

Amitabh Bharadwaj
Woshington University, St. Louis
Marsha Cheung
University of Colifornio, Son Froncisco
Howard Fine
Wilmer Eye Institute, Johns Hopkins, Boltimore, MD
Lily Koo
Mossochusetts Eye ond Eor Infirmory
Rodrigo Torres
University of Southern Colifornio, Los Angeles

Orthopedic Surgery

Jennifer Graham
Horvord Combined Orthopedics Progrom
Rajiv Sethi
Horvord Combined Orthopedics Progrom
Susan Stewart
Horvord Combined Orthopedics Progrom

Otolaryngology

Deidre Larrier
Tufts University Progrom

Pathology

Quentin Eichbaum
Mossochusetts Generol Hospitol
David Lombard
Brighom ond Women's Hospitol
Robert Monroe
Stonford University Progroms
Aliyah Rahemtullah
Mossochusetts Generol Hospitol
Miguel Rivera
Brighom ond Women's Hospitol

Pediatrics

Suneet Agarwal
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Mossochusetts Generol Hospitol
Margaret Crawford
Boston Combined Pediotric Residency
Michelle Dorrell
New York Presbyterion Hospitol (Cornell)
Elizabeth Fortescue
Boston Combined Pediotric Residency
Mark Gorman
Boston Combined Pediotric Residency
David Jones
Boston Combined Pediotric Residency
Emily Katz
Mossochusetts Generol Hospitol
Justine Larson
Mossochusetts Generol Hospitol
Katherine Lemon
Boston Combined Pediotric Residency
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Christina Ullrich
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Jennie Votava
University of Woshington Affilioted Hospitols

Pediatrics/Primary Care

Anne Lee
Boston Combined Pediotric Residency

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BEST OF BOSTON RECIPIENT



PHOTO: JEFF CLEARY

BRIGHT FUTURES: Greg Sawicki chose a pediatrics residency, while Aliyah Rahemtullah selected pathology.

Plastic Surgery

Jesus Garcia
Brigham and Women's Hospital
Sacha Obaid
University of Texas Southwestern Medical School Program, Dallas
Amir Taghinia
Brigham and Women's Hospital

Psychiatry

Paul Barghesani
University of Washington Affiliated Hospitals, Seattle
Andrew Gerber
New York Presbyterian Hospital (Cornell)
Nikki Gardan
New York Presbyterian Hospital (Cornell)
Eric Marraw
Massachusetts General Hospital/McLean
Kirsten Rhades
Massachusetts General Hospital/McLean

Radiation Oncology

Beverly Guadagnala
Joint Center for Radiation Therapy, Boston
Reshma Jagsi
Massachusetts General Hospital
Benjamin Rasenbluth
Memorial Sloan-Kettering, New York, NY
Ping Zhau
Joint Center for Radiation Therapy, Boston

Radiology

Jing Chen
University of California, San Francisco
Lina Chen
UCLA Medical Center
Bryan Hwang
Stanford University Programs
Stephen Laba
Beth Israel Deaconess Medical Center
Aradhana Venkatesan
Massachusetts General Hospital
Jesse Wei
Beth Israel Deaconess Medical Center

Urology

Canstance Marks
Cleveland Clinic Foundation

Other

Eran Bendavid
International Medical Experience
Salange Brawn
Postdoctoral Fellowship, Harvard University
Yvanne Chan
Postdoctoral Fellowship, University of California, San Diego
Steven Chaa
Associate, McKinsey & Co., Boston
Richard Christie
Associate, McKinsey & Co., New York, NY
Katrin Chua
Postdoctoral Fellowship, Center for Blood Research/ Children's Hospital, Boston
Neil Ghisa
Research, Boston
David Hirsch
Associate, McKinsey & Co., Florham Park, NJ
Andrew Oberwager
Health Care Finance
Lari Pai
Research, New York, NY
Jessica Premdas
Associate, McKinsey & Co., Florham Park, NJ
Mayukh Sukhatme
Associate, Norragansett Asset Management, New York, NY
Kweli Thampsan
Health Care Policy, Boston

U.S. NEWS RATES HARVARD HOSPITALS AMONG THE COUNTRY'S BEST

Harvard-affiliated teaching hospitals continued to rank high in this year's listing by *U.S. News and World Report* of the nation's best hospitals. The annual rankings include an "honor roll" that lists hospitals that "demonstrate unusual excellence across the board," and again Massachusetts General Hospital and Brigham and Women's Hospital made the list, ranking third and eleventh, respectively.

Beth Israel Deaconess Medical Center came in at number 27 in oncology, 10 in cardiology, 5 in endocrinology, 19 in gastroenterology, 11 in geriatrics, 42 in gynecology, 21 in nephrology, 43 in neurology, 37 in orthopedics, and 31 in rheumatology. Brigham and Women's ranked number 18 in oncology, 5 in cardiology, 4 in endocrinology, 15 in gastroenterology, 16 in geriatrics, 3 in gynecology, 2 in nephrology, 13 in neurology, 12 in orthopedics, 9 in pulmonary disease, 4 in rheumatology, and 20 in urology. Children's Hospital ranked number 1 in pediatrics. Dana–Farber Cancer Institute came in at 4 in oncology and 20 in neurology. Massachusetts Eye and Ear Infirmary ranked number 3 in otolaryngology and 4 in ophthalmology.

Massachusetts General Hospital came in at 13 in oncology, 3 in cardiology, 2 in endocrinology, 4 in gastroenterology, 5 in geriatrics, 7 in gynecology, 1 in nephrology, 2 in neurology, 3 in orthopedics, 16 in pediatrics, 1 in psychiatry, 7 in pulmonary disease, 6 in rheumatology, and 8 in urology. McLean Hospital ranked number 4 in psychiatry.

PRESIDENT'S REPORT



I RECENTLY LEARNED, TO MY astonishment, that the construction of the Cathedral of Milan occurred over a 500-year period from 1386 to 1887. How exactly is a project of this magnitude sustained? How is the vision kept alive? How do people persevere through the layers of motivation and perspective that surround such an effort? (What thoughts must there have been in the minds of the stonemasons? "I have so many stones to haul!" "Will the day never end?" "I'm making a good living for my family, and the work is steady." Or perhaps, "I am contributing to the making of a house of worship to last for centuries!")

I was struck by the parallelism with our roles and today's house of medicine: the mindset of "hauling so much stone" versus the vision of stewardship in contributing to healing and teaching in this time and place, and passing it on for another generation to seize and refine. Much of the discussion during this spring's meeting, the last of the Alumni Council's year, focused on buttressing the School's efforts in medical education in the present and future. We continued our dialogue, led by Pete Coggins '58 and Joseph Hurd '64, about the Coleus Society's focusing on minority student needs both before and after graduation.

We sampled the power of medical simulation under the guidance of James Gordon and appreciated the value of the new technology in learning and practicing critical skills in a "safe" environment. We learned from Dan Federman '53 and Janet Hafler of the programmatic efforts aimed at helping residents become better teachers, initiatives that reflect the pivotal role of housestaff in the education of medical students. And we were updated by Dan Lowenstein '83 about The Academy, a creative and vital initiative aimed at supporting medical education within HMS and affiliated institutions. As before, the Council had the opportunity to meet with Dean Joseph Martin and learn of his enthusiastic support of these teaching endeavors as well as hear about the continued structural changes designed to solidify the School's position as a leader within medicine today.

In addition to these faculty updates, the Council learned the results of a small, pilot alumni survey. After much discussion and effort, a web-based survey was sent to a sample of alumni from classes represented on the Council, with a slightly better than 50 percent response rate. The survey's intent was to test the feasibility of using email to conduct brief surveys about issues of importance to HMS and medicine in general. (The Alumni Office has email addresses for about half of our 8,600 alumni.)

In this pilot, we sought answers to both specific questions ("Should HMS add courses on the business of medicine?"—to which 88 percent responded affirmatively), as well as slightly more open-ended inquiries ("If you had 20 minutes alone with Dean Martin, what would be the single most important issue you would discuss with him?"—a question that yielded a rich range of responses from health in developing countries to student indebtedness). The survey will be extended to a broader sample of the alumni this fall and we look forward to your responses.

Finally, I want to acknowledge the privilege of working with and learning from the Council over the past three years. Their sense of commitment to HMS and to medicine sharpens my appreciation that the vision "for the cathedral" is not lost but, as we all acknowledge, must be preserved. As well, I want to recognize the sustaining efforts of the Alumni Office, especially those of Dan Federman, Nora Nercessian, and Tenley Albright '61. I also want to congratulate the new members of the Alumni Council and wish our new president, Pepper Davis '63, the same measure of collegiality and support I've been privileged to enjoy. ■

Charles J. Hatem '66 is director of medical education at Mount Auburn Hospital in Cambridge, Massachusetts.

KEEP IN MIND

THE HISTORY OF PSYCHIATRY AND MEDICINE

The Department af Pastgraduate and Cantinuing Education at McLean Hospital and the Harvard Consalidated Department of Psychiatry invite you to attend a Collaquium on the Histary af Psychiatry and Medicine this fall. The sessians—an such tapics as Jewish tradition and medical ethics; disease, diagnasis, and deviance; and religion and medicine—will be held at the Daniel C. Tastesan Medical Educatian Center.

For more information, contact David Satin '58 at david_satin@hms.harvard.edu

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PLEASE CALL FOR FURTHER PARTICULARS. IT WILL BE A PLEASURE TO ASSIST YOU.

The Real World Guide to Psychotherapy Practice

Edited by Alex N. Sabo, MD, and Leston Havens, MD
(Harvard University Press, 2000)

WE WERE HMS III STUDENTS ON A PSYCHIATRY ROTATION: PLIANT, absorptive, and looking to please. The cherry on our sundae was a series of meetings with an eminent professor of psychiatry. Each week, in our presence, he interviewed an inpatient before us. There was a first-year student from MIT cowering under her first psychotic break. A woman on her 25th admission for the same single thought. A man who spoke at the speed of sound. A man who didn't speak at all. The width and depth of unhappiness was breathtaking.

Our professor was properly stooped, with a voice light as ash and an air of calm beyond calm. We assumed the calm came from that profound life of professional thought that psychiatrists lead.

On the last day of the rotation, he met us without any patient. It was time for the traditional summation and farewells. He looked at us kindly. "I can tell anyone here where the brain is," he began. Then suddenly, he hit the table. It shook alarmingly. "But, dammit," he said, "can anyone here tell me where the *mind* is?"

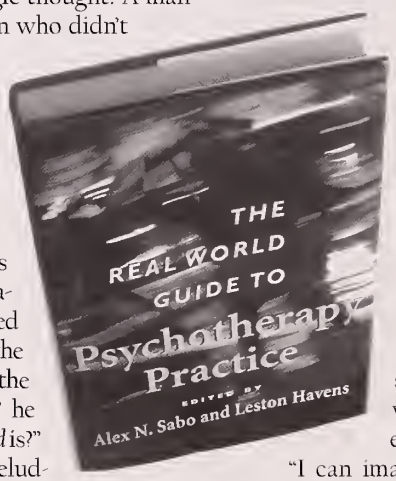
None of us could. The fact must have eluded us in some lecture. It was a rookie student mistake, being caught by a question. His eyes flashed while he waited. I saw nephrology in my future.

Locating the mind (we did not know then) is the question psychiatry has tackled straight on and swerved to avoid, run directly toward and then escaped, measured with MRIs and pinned down in a thousand certain ways. But always it rises up again, reconstituted into a more complex form. Everyone knows where the brain is, but no one knows where the mind is. Yet even without knowing, we are obliged to care for patients who are losing theirs.

Twenty years later, it is unlikely that the professor of psychiatry has found the answer to his question. But now, with a colleague, he has edited a book, a wonderful book, on all the ways to work effectively and usefully without that answer.

Don't be misled by the title. *The Real World Guide to Psychotherapy Practice*, edited by Alex N. Sabo and Leston Havens, sounds as if the chapters will be looking down at the reader from heights so lofty they are about to trip over themselves. But the book is full of such graciousness, humility, and good writing that it brings to mind a word almost entirely missing in psychiatry these days—poetry.

PHOTO: LIZA GREEN



Just look at how it is organized. A series of commentaries, almost Talmudic, precede each section "like river guides, placed...to point out bends...or fast currents before they arrive." The first section is not about neurobiology or insurance, but "The Relationship in Clinical Work." Astounding! Revelatory! Luxurious! Retro! And, as the authors argue in several eloquent chapters, essential for patients and therapists, who—through behavioral therapy, group therapy, trauma therapy, psychoanalysis, or pharmacology—enter the unforeseeable land of discovery together. As Dr. Sabo writes in his introduction, "In the grander scheme, we believe that attention to the quality of relationship ensures the survival of the individual, the carrier of human experience."

This is followed by a section on "How the Work Gets Done." It implies something operational—maybe a list of assembly instructions with illustrations on where to cut and fold. Instead, there is a series of stories. One therapist writes about working with violent men, another with "people stressed by poverty," another with emergencies, and another, simply, with "a desperate situation." The writers have been culled from all levels and variety of training, but they have this in common: they *care*, in unapologetic first person. Passion causes topics that have been written about many times before to turn elegant corners and leap into new thought.

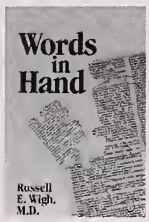
"I can imagine," one writer muses, "what...difficult feelings I would have about someone who offered me support, invited me to confide, yet who...could take my children away from me."

The third section, "Rethinking Psychotherapy," is half theory, half mulling. Although it contains a rather technical treatise on dialectical behavioral therapy, it closes—deliberately, maybe even defiantly—with a meditation on psychoanalysis. That dinosaur still roams, still evolves, and is described here by an analyst who loves its bones. He makes his case in a tangle of puns and layers as elegant as a dreamer dreaming his dream.

The book ends clearly: be warned about entering the unlocated, oblique mind of another, but do not be warned off. "What the patient accomplishes becomes in some measure part of the history of the therapist," writes Dr. Havens in his ash-light voice. He is not pounding the table to provoke his students this time. He is inspiring us. "An extraordinary joy enters...for both parties, through this making of lives. Could there be better work to do in the world?" ■

Elissa Ely '88 is a lecturer on psychiatry at HMS.














Most Greatly Lived

A Biographical Novel of Edward de Vere, Seventeenth Earl of Oxford, Whose Pen Name Was William Shakespeare, by Paul Hemenway Altrocchi '56 *(Xlibris, 2000)*

A second-generation member of the Shakespeare Oxford Society, the author explores one of the world's greatest literary mysteries. This novel follows the interconnected lives of three historical figures: Queen Elizabeth, Lord Treasurer William Cecil, and the little-known Edward de Vere, whom Altrocchi suggests may be the true author of the plays attributed to William Shakespeare.

Words in Hand

by Russell E. Wigh '39
(Professional Press, 2000)

Designed for people with memory impairment, *Words in Hand* provides lists of commonly used words, organized by category. Groups of words are provided for all areas of life, including sports and entertainment, food, religion, nature, technology, and government. Users can carry the small volume anywhere to help them recall the words they need to communicate, allowing them to feel more confident and at ease.

Love and Modern Medicine

Stories, by Perri Klass '86
(Houghton Mifflin, 2001)

The author of this short story collection is a practicing pediatrician and five-time O. Henry Award winner. These 11 stories explore the intersection of personal and professional life, often focusing on couples, families, and babies. Klass's complex characters are parents, doctors, patients, friends, and lovers, who find that professional expertise—even the finest medical knowledge—cannot always ward off threats to everyday happiness.

The Door of No Return

A Spiritual Pilgrimage for Africans in America, by Mary A. Flowers '78
(Xlibris, 2000)

The author's journey to Africa provides the basis for this personal account. When the lives of three African American female physicians are shaken by a drive-by shooting in a Southern California town, they seek refuge in the ancient city of Dakar. The author visits the slave castle of Gorée Island, on the coast of Senegal, where slaves were housed before moving on to the "Middle Passage" to be sold in America. Ultimately her journey leads her to a rich appreciation of the lives and sacrifices of her ancestors.

Pioneers in Medicine and Their Impact on Tuberculosis

by Thomas M. Daniel '55
(University of Rochester Press, 2000)

The stories of six medical pioneers, whose lives spanned nearly two centuries, are examined in this book about the fight against tuberculosis. The author explores these scientists' contributions in their own fields—pathology, bacteriology, public health, immunology, epidemiology, and antibiotics research—as well as their special work in conquering tuberculosis. Their discoveries are also examined in relation to the dramatic expansion of medical science during the times in which they lived.

A Question of Intent

A Great American Battle with a Deadly Industry, by David Kessler '77
(Public Affairs, 2001)

A former Commissioner of the U.S. Food and Drug Administration under presidents George Bush and Bill Clinton, Kessler has written a riveting detective story that uncovers how the lethal tobacco industry was able to keep a nation in its grip for more than half a century, and how a small team at a government agency fearlessly faced it down.

Is My Child Overtired?

The Sleep Solution for Raising Happier, Healthier Children, by Will Wilkoff '70
(Fireside, 2000)

Sleep deprivation is a much more important health issue than many parents realize. Wilkoff addresses the problem by describing the unique sleep requirements for each stage of development, from infancy through adolescence. He also offers a proactive child-rearing plan that encourages parents to establish and stick to a sleep routine for the whole family.

Breathing New Life into Asthma Therapy

ABOUT OF ASTHMA CAN LEAVE A person spent and shaken, but scientists have recently uncovered a more lasting consequence. During an attack, the delicate airways in the lungs—the tiniest of which give rise to the grapelike alveoli—can grow permanently scarred, making future attacks even more debilitating. Figuring out what causes these airways to be remodeled—and how to stop it—is one of the most active quests in asthma research.

A team of HMS scientists has hit upon a novel explanation for how this airway remodeling occurs, one that suggests a revised approach to asthma treatment.

Mechanical Difficulties

Until recently, suspicions have centered on the immune cells. Asthma begins when these cells signal the smooth muscles encircling the lung's airways to constrict. Researchers thought that during an attack, the immune cells might send a second set of messages, this time to the epithelial cells lining the airways, ultimately causing the airways to stiffen.

It now appears that another force may be working on the epithelial cells, namely the mechanical stress exerted upon them by the constricting smooth muscles. As these muscles tighten, epithelial cells are squeezed and deformed. Jeffrey Drazen '72 and his colleagues have evidence that the cells sense this deformation and send messages to nearby cells, telling them to produce stiffening proteins, perhaps to resist the stranglehold.

Led by Melody Swartz, who was until recently a research fellow in Drazen's laboratory, the researchers grew human epithelial cells together with fibroblasts, which are responsible for making collagen and other airway-thickening proteins. Swartz, who is now at Northwestern University, and her colleagues exposed the epithelial cells to the kind of mechanical stress they might experience during an asthma attack. They found that the fibroblasts secreted fibrous proteins. When the stress was removed, the fibroblasts failed to produce the proteins. The findings, which appeared in the May 15 issue of *Proceedings of the National Academy of Sciences*, suggest that during an asthma attack, stressed epithelial cells are sending signals to the collagen-producing fibroblasts.

Tuning in to this mechanically induced cellular conversation may lead to a new therapeutic approach, or rather, the revival of an old one—namely, the use of muscle relaxants. For decades, asthma was treated with drugs that loosen the smooth muscle's grip on the lungs' airways. These muscle relaxants were discarded about 20 years ago in favor of anti-inflammatory agents, which help stop immune cells from instigating an attack. But these steroids are not completely effective. Adding muscle relaxants could help break the cycle of attack, constriction, and stress-induced scarring.

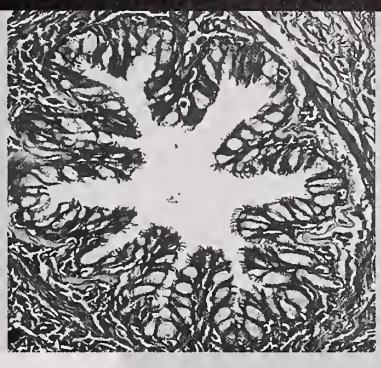
"I would argue from this work that muscle relaxants should be combined with anti-inflammatory medicines, because by preventing smooth muscle constriction, they would prevent this amplification from occurring in the first

PHOTO: GRAHAM RAMSAY

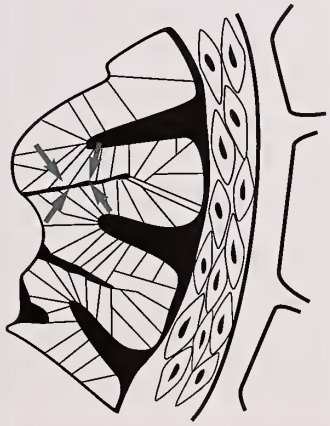


BREATHING EASY: A study by researchers including Jeffrey Drazen (left) and Dan Tschumperlin suggests that muscle relaxants might be combined with steroids to produce an improved asthma treatment.

WHAT HAPPENS DURING AN ASTHMA ATTACK?



During an asthma attack, smooth muscles encircling the lung's airways constrict, causing the normally smooth layer of epithelial cells lining the airways to invaginate and bunch up on themselves, producing a corrugated appearance.



The mechanical forces produced by the compression of the epithelial cells (see arrows) cause the cells to upregulate genes that lead, ultimately, to airway stiffening.

FIGURES: COURTESY OF JEFFREY DRAZEN

place," says Drazen, an HMS professor of medicine at Brigham and Women's Hospital and editor-in-chief of the *New England Journal of Medicine*. Such combined therapies—steroids and muscle relaxants in the same inhaler—are already used in Europe. Although the combined therapy has met with some resistance in the United States, Drazen hopes that the new work will provide a rationale for the incorporation of muscle relaxants.

"People have viewed preventing bronchoconstriction as a physiological treatment," he says. "They thought it had no effect on the cell biology. These data suggest that this physiological treatment actually has a substantial impact on the cell biology of the airways."

Mixed Signals

It was a sense that such therapies—in particular, a new class of long-acting muscle relaxants—were being unfairly dismissed that inspired Drazen to take a closer look at the effects of bronchoconstriction on human epithelial cells. He and his colleagues had previously shown that applying mechanical pressure to rat epithelia caused the cells to turn up the expression of certain genes. Suspecting that it might do the same in human epithelial cells and that the upregulation might be directed at signaling fibroblasts to make collagen and other airway-thickening proteins, Swartz cultured the two kinds of human cells together.

Sure enough, when the epithelial cells were mechanically stressed, collagen levels went up. At the same time, fibroblast proliferation slowed down, suggesting that the epithelial cells were signaling each fibroblast to make extra protein. But in addition to signaling the fibroblasts, epithelial cells put out two enzymes—MMP-9, which degrades collagen, and TIMP-1, which inhibits MMP-9, thereby preserving collagen. In people with asthma, the ratio between the two enzymes is tipped in favor of the collagen-preserving TIMP-I. The experimentally stressed epithelial cells exhibited the asthmalike ratio.

This raises an interesting set of possibilities. "Either the fibroblasts are producing more collagen on a per-cell basis when we apply the stimulus or the epithelial cells are modulating their enzyme system to allow more collagen to be elaborated in the medium," says Dan Tschumperlin, research fellow in physiology in the Department of Environmental Health at the Harvard School of Public Health and a co-author on the paper. He is currently studying the signals sent by the epithelial cells to the fibroblasts to see if any are capable of upregulating collagen production.

It is unlikely that those signals will tell the whole story. In another experiment, the researchers exposed isolated fibroblasts to culture medium containing the mechanically induced epithelial signals, but no epithelial cells. Fibroblast proliferation increased, whereas it slowed down in the presence of epithelial cells. The findings suggest that there is an ongoing dialogue between fibroblasts and epithelia. "The fibroblasts are somehow communicating with the epithelial cells as well as the epithelial cells communicating with the fibroblasts," Tschumperlin says.

What kind of communication might be occurring between the two kinds of cell? "If you think of this as a mechanism to stiffen the airway and therefore prevent it from constricting, perhaps this two-way communication allows the epithelial layer to know everything is okay—or not okay," Drazen says. "So you don't just have cells saying 'remodel.' Other cells need to be able to say 'this area needs amplification, or shoring up, and this area needs downregulation.'" ■

Misia Landau is the senior science writer for Focus.

DOCTORS IN BATTLE

From the halls of Vanderbilt, to the shores of Tripoli, Harvard medical students and faculty

"IT SEEMS HARD TO REALIZE THAT THE EASY-GOING DAYS OF normalcy in medical education ever existed and that, once upon a time, Harvard students wandered leisurely through four years of medical school life. In those days we were all civilians; men of peace, a group of teachers and students lunching together each day in Vanderbilt Hall at small tables, working together in laboratories and clinics; in general, leading a pleasant and unruffled existence." Thus HMS assistant dean Reginald Fitz '09, writing in the 1946 *Aesculapiad*, reflected on the idyllic period before the so-called "total war" transformed the School and the lives of its students and faculty.

As early as 1939, when the war broke out in Europe, some at HMS, mindful of events back in 1914, began planning for the

WINDS OF WAR: To prepare for battle, HMS students undertook a specialized curriculum, including chemical warfare training on the Quadrangle, pictured here.



R

HMS prepares for A

W

answered their country's call to duty

by Beverly Ballaro



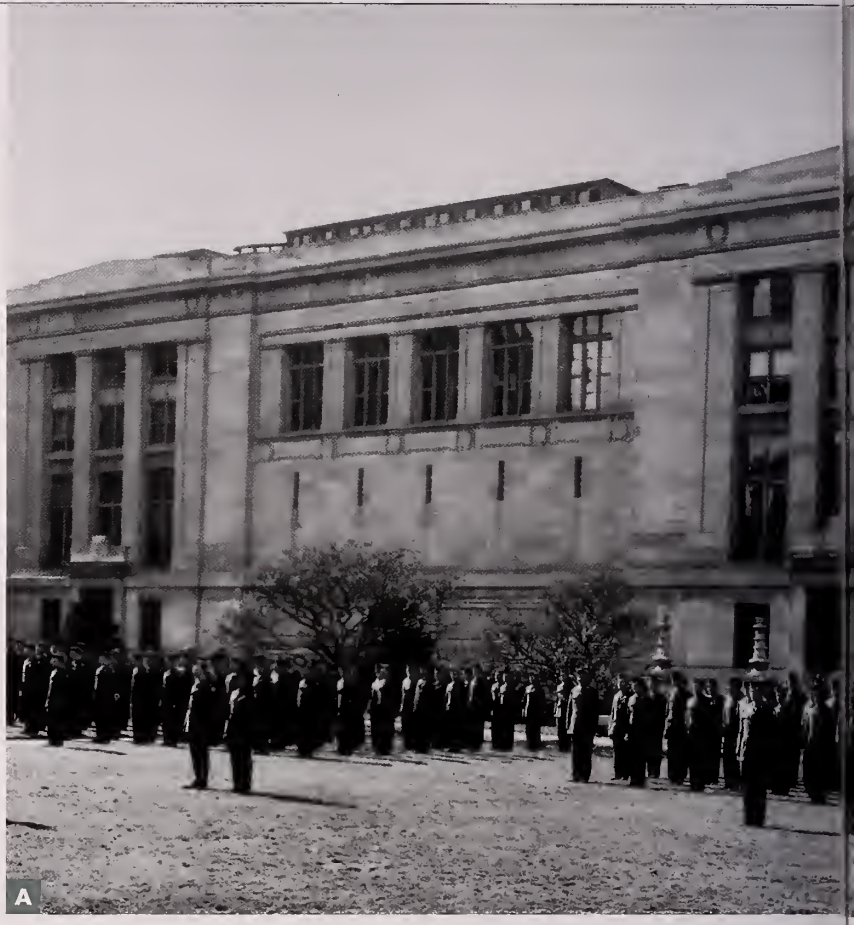
By April 1943, rumors flew wildly at HMS that the students would soon be called to active duty. On June 24, 1943, those

possibility of future involvement. The faculty established a War Committee and unearthed from the archives the old plan for Base Hospital No. 5, the Harvard unit that had served in World War I. They used it as a model for creating, on paper, a new unit, General Hospital No. 5, to be ready for active duty if the need arose.

HMS investigators began focusing their research, much of it secret, on war medicine. They studied challenges related to aviation physiology and the problems of shock and blood volume replacement. They worked on perfecting clothing designed to protect troops in extreme weather; producing improved oxygen masks for high-altitude pilots; treating burns and head injuries in innovative ways; and facilitating whole blood shipments to combat zones. HMS faculty added to the curriculum courses in first aid, tropical medicine, and chemical warfare.

Yet to most students, at first, the war seemed distant and surreal, the stuff of newspaper headlines rather than real life. The 1944 *Aesculapiad* records one student's melancholy reflection: "To us, the first real inkling of any change in our affairs, was...when the units of both the Brigham and the General went on active duty, taking with them a quantity of our teaching staff. At first, these men were mere lists of names, for we were still in our preclinical years and knew of the men in the clinics only from the humorous anecdotes of the upperclassmen. But soon our clinical apprenticeship was upon us and we quickly came to realize that there was something missing, though there was great consolation in the numbers of older men who had come back to teach us... But just as we were beginning to revel in their wealth of clinicians, their unit too was called away."

"The war was foremost on our minds," says Francis D. Moore, Sr. '39,



PHOTOS IN THIS ARTICLE COURTESY OF THE HARVARD MEDICAL LIBRARY IN THE FRANCIS A. COUNTWAY LIBRARY OF MEDICINE

A

who spent the war years at HMS conducting research critical to treating casualties. "We wondered when we would get into the war to help stop the horrors of Hitler. The Japanese answered that question for us on December 7, 1941. After that, the changes in our daily work at HMS were truly massive. The 'foreign' war became *our* war."

After Pearl Harbor, life at HMS took on a steadily more martial character. Teaching laboratories were turned into a registration center, where all students filled out Selective Service forms, declaring themselves second lieutenants or ensigns in the Army or Navy reserves. Beginning in July 1942, seven months after Pearl Harbor, the dean and faculty made arrangements to compress medical training into three years instead of four. The accelerated curriculum led to two groups of graduates: the fourth-year students graduated in March 1943 and became known as the A's, while the original Class of 1944, also accelerated, graduated in December of the same year and became known as the B's.

By April 1943, rumors flew wildly at HMS that the students would soon be called to active duty. On June 24, 1943, those rumors became reality, as a first batch of 175 medical students, followed soon after by an additional 150, left Vanderbilt Hall and boarded a train for Ayer, Massachusetts. The men had no idea what to expect from the two days of processing at Fort Devens, which would turn them officially into privates in the U.S. Army. Two weeks

students would soon

rumors became reality.





B



C

WAR GAMES:
A. HMS students stand at attention on the Quadrangle.
B. Vanderbilt Hall was transformed into an austere barracks for the student-soldiers.
C. HMS students receive a lecture on casualty transport.

After a barrage of Army intelligence tests, early morning

were grateful to return to Vanderbilt Hall—until they



later, another 165 HMS students, though still based at the School, were declared active seamen in the Navy.

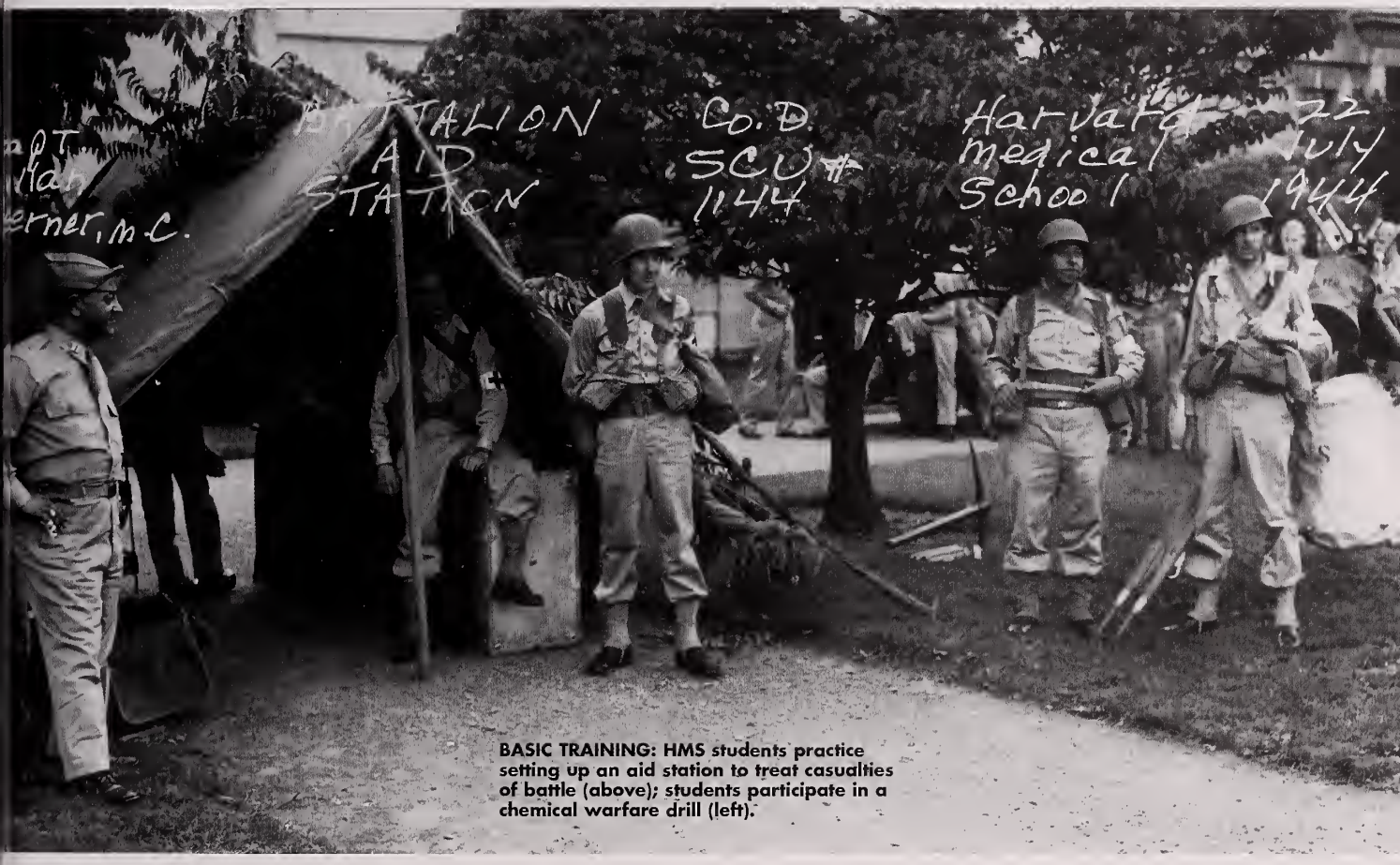
At Fort Devens, following a long march from the train to the camp, the Army men picked up their uniforms and equipment, assembly line-style. They then hauled their heavy bags to the barracks, sweating through the winter uniforms they wore despite the summer heat. After a barrage of Army intelligence tests, early morning reveille, policing, drilling, lectures about sex, and KP, the students were grateful to return to Vanderbilt Hall—until they realized that it had been turned into a military barracks that rivaled an outpost of Fort Devens, complete with an 11:00 p.m. bedcheck.

Their previously single rooms now featured twin desks and iron double-decker bunk beds covered with Army-issue brown blankets. At the foot of each bed hung a gas mask and barracks bag. On orders, pin-up posters of starlets disappeared from the walls, as did photos of wives on bureaus. Drilling, saluting, and bugling became commonplace. The students sat at long, narrow tables in the dining halls. Waitresses were replaced by self-service. Every Friday, the medical regiment performed an exercise in which members marched past the administration building accompanied by military music and then stood at attention in the Quadrangle as the national anthem was played.

Captain Russell Fairbanks arrived and instituted his regimen of shoe polishing, room inspections, and 6:45 a.m. reveille. Then the student-soldiers, guided always by the same recorded march, paraded around the Quadrangle and did exercises and drills. Medical lectures began at 8:30, causing some grumbling among the students.

John C. Bullard '45 penned the following diary entries: "July 12, 1943: Fairbanks continues his campaign as Hitler, Jr." and "August 18, 1943: Somebody asked Fairbanks for a half-hour more sleep—this leads to calisthenics." To the relief of the ranks at HMS, Fairbanks was eventually replaced by a more genial company commander, Major Jerome Rosengard, who occu-

reveille, drilling, lectures about sex, and KP, the students realized that it had been turned into a military barracks.



BASIC TRAINING: HMS students practice setting up an aid station to treat casualties of battle (above); students participate in a chemical warfare drill (left).

pied an office on the first floor of Building A.

The war gradually crept into every aspect of life at HMS. One student wrote in the 1944 *Aesculapiad*, "It was over a year ago that the dim-out began, and the parking lot light went out, along with the lights on the rest of the eastern seacoast. Building A was darkened, and the remaining buildings were locked tight promptly at six, to protect from spying eyes the secrets of medical research which their upper floors contained."

Gasoline became scarce, and the students found themselves vainly trying to convince ration boards that their trips to hospitals were more, the student wrote, "than just pleasure jaunts. Bicycles sprouted, even roller skates appeared and many of us ran hurriedly from trolley to trolley in the Park Street Station. Food prices in the dining hall inched up while sugar and butter disappeared from the tables."

In one of the HMS dean's offices, Reginald Fitz noted in the 1946 *Aesculapiad*, there hung a map of the world onto which many tiny Harvard flags had been pinned, marking the places where, at some time during the war, an American medical installation was manned in part by HMS alumni.

"They are thickest in New England and along the Atlantic coast," Fitz wrote, "but appear dotted all over the United States...There is a large collection of flags in the British Isles, fanning out across the English Channel to France and Germany. There is another collection in Africa extending northward to Sicily and Italy, and eastward, if one goes far enough, to India and to Burma... There are Harvard flags in all the places that were so expensively occupied during the campaigns in the Pacific: Pearl Harbor, Australia, New Zealand, New Guinea, Luzon, China, and even Japan."

By the time Japan surrendered in August 1945, a total of 1,788 HMS men had seen active duty as medical officers at one time or another during the war, and 25 had died while in military service. ■

Beverly Ballaro is associate editor of the Harvard Medical Alumni Bulletin.

A R M S

A call to

by BERNARD J. RYAN

THE SECOND TIME I EVER flew in an airplane, I jumped out of it. I was a 25-year-old surgical intern when World War II broke out; convinced that there would be more romance in Europe than in the Pacific theater, I volunteered as a battalion surgeon to join parachute regiment 506 of the 101st Airborne Division, also known as the "Screaming Eagles." From D-Day, to the invasion of Holland, to the Battle of the Bulge, I learned firsthand what it means not just to



PHOTO: CORBIS

A battalion surgeon recalls the horrors of war on the front lines



WOUNDED WARRIORS:
American assault troops of the 16th Infantry Regiment, injured while storming Omaha Beach during the D-Day invasion of Normandy, wait for evacuation to a field hospital for further medical treatment.

I was the last one out of the plane and experienced a was ablaze with enemy fire, and bullets seemed to



PHOTO: CORBIS

treat casualties of war, but also to become one.

In September 1943, my regiment arrived in England, where we spent the fall and winter in field exercises and training maneuvers. Some of the time I served as a doctor at a jump school for the paratroops. I found it rather boring so, one day, I went up and jumped with the students. When the commander found out, he angrily ordered me not to jump anymore. He said he didn't want to lose one of his doctors foolishly; physician volunteers for the paratroops were scarce.

During the week before D-Day, my battalion was intensely briefed on our upcoming mission, which was to secure two bridges behind enemy lines. We studied maps, aerial photos, and sand tables, and we received repeated instructions down to the very last details. The aerial photos were a few weeks old, though, and did not show that the enemy had closed the locks on the river and flooded large areas of our objectives. This reconnaissance failure was only the first of many problems we would encounter on our foray into enemy territory.

On the two-and-one-half-hour flight across the English Channel, some of the men slept while others smoked. Most of us were scared, not knowing what we were going to face. I passed around what I believed were antimotion pills but, as the men put them in their mouths, they exclaimed, "My God, these are salt pills!" In my haste, I had mistakenly scooped the wrong bottle off the table in my darkened tent. It made little difference, however, as we approached the Normandy coast.

Around one in the morning on June 6, 1944, all hell broke loose. The antiaircraft and small-arms fire from the ground was horrendous. Our planes broke formation and began taking violent evasive action, which they were not supposed to do. When we stood up in preparation to jump, we were thrown about as the plane careened in all directions. The pilot was supposed to slow down to about 95 miles per hour but didn't, so we were traveling at top speed when we jumped.

I was the last one out of the plane and experienced a terrific opening shock. The ground was ablaze with enemy fire, and tracer bullets seemed to be coming from all directions. I pulled my legs up to make myself a smaller target. Loaded down with 150 pounds of equipment, I plummeted 400 feet in 30 seconds, landing a mile and a half away from where I was supposed to be, hip-deep in water covering what had been dry land before the Germans had flooded it. I was in such a hurry to get out of my chute that I drew my trench knife, cutting my hand in the process.

Once on the ground, I found myself simultaneously in trouble and blessed by fate; just before we had boarded our plane in England, the assistant battalion commander had requested that I jump last. The commander wanted the signal captain, who carried special equipment to communicate with an Allied warship in the channel, at his side when he landed. The ship could, at his direction, direct its fire at our objective.

On previous maneuvers, I had always jumped directly behind him or the assistant commander, and I was unhappy about being the last one to leave the plane. But this change almost certainly saved my life. Both the commander and the signal captain were killed on the jump, as were two others who had the misfortune to land in an area of high enemy concentration.

In the water, I met up with three men from my outfit who had landed nearby.

terrific opening shock. The ground

be coming from all directions.





IN THE HEAT OF BATTLE: Medics start an IV as they assist a wounded soldier in France after the Normandy invasion (left). Bernard Ryan (above) saw action in the war's biggest campaigns, including D-Day and the Battle of the Bulge.

Together, we cautiously approached what we thought were American soldiers darting around a burning plane, only to discover that the figures in question were Germans who had set a building ablaze to illuminate the surrounding area. When we closed to within 75 yards, they heard us and opened fire. We flopped on our backs in the water and paddled away as fast as we could. But in the process of escaping, we became separated from each other.

I spent D-Day perched on my helmet in some brush, up to my neck in water and unable to move without being detected by the heavy German traffic passing on an elevated highway nearby. Heavy artillery started coming in all around me that afternoon, with shells blasting up huge mounds of wet earth that would have buried me alive had they landed on me. It was almost 11 o'clock before it got dark enough for me to move. After making it to dry ground, I found a parachute, which I crawled under, and went to sleep. I had not slept for 36 hours.

When daylight came, I peeked out from under my hiding place and found myself only a short distance from a German bivouac. Luckily, no one ventured out to inspect the chute. I had with me some K rations, a canteen of water, and some rancid bourbon. I spent the next two nights surrounded by Germans until American troops finally broke through and drove the enemy out.

Shots in the Dark

In September 1944, Allied commanders came up with a plan for a daring invasion of Holland. Our division mission was to take two vital bridges and help seize a 60-mile corridor across the Rhine. Most of us were happy to be making a daylight jump after the confusion and slaughter at Normandy.

We enplaned at about ten o'clock in the morning on a beautiful, sunny day. We encountered some antiaircraft fire over German-occupied Holland and lost a few planes, but that was nothing

A fierce, all-day battle had begun. By that afternoon, behind their lines. German infantry surrounded

compared to Normandy. The landing was successful, with few jump casualties. But then on the ground we met determined resistance, and the Germans managed to blow up the first bridge before our troops could overrun it.

The Germans defending the bridge fled south to Eindhoven. The next morning, I was with the leading company of the 3rd Battalion as we made a direct infantry assault on Eindhoven. We faced heavy fire without any artillery or heavy weapons support. A lieutenant standing a short distance from me received an immediately fatal gunshot to the head. At about the same time, I was able to start a unit of plasma on another soldier by sticking his bayonet rifle into the ground and hanging the bag from it.

The company commander, who had been leading the attack, was shot through the shoulder. My company was then held up at a hedgerow. As I came up to it, a lieutenant yelled, "Doc, get down! They're right on the other side of this row!" I crouched down and went along. When I returned a few minutes later, the lieutenant was dead, having been shot through the head.

Shortly afterward, the regimental commander came up with his adjutant, who was carrying a clipboard. The adjutant said, "We'd better get down or we're going to be shot." The words were hardly out of his mouth when he received a fatal bullet to the head. Since he was carrying a clipboard, the Germans probably mistook him for a ranking officer.

When a British surgical unit arrived, I turned a paratrooper with a severe chest wound over to it. I had been able to keep him alive by aspirating his chest and reinfusing his own blood back by vein, as I had no whole blood supply. He needed urgent surgery to stop his bleeding. The next morning, I went to check on him and learned that he had died during the night.

While we were still in Eindhoven, a group of German bombers came over in the evening and bombed us heavily. A British armored column suffered badly, and I witnessed the decapitation of a British tankman. The attack also took a heavy toll on civilians. A concentrated bomb strike on a thickly populated area is a terrifying experience.

Behind Enemy Lines

Eventually my unit was ordered to move north. We set up our aid station in a church in Veghel. Some of the nuns helped us while others prayed in the cellar. The Germans were attacking the town and shelling it heavily. One of our paratroopers had both of his legs blown off at the hips right outside the church. He lived only a few minutes.

My regiment then reached a small town on a front line just south of the Rhine. We set up an aid station in the home of the town doctor. The civilians, including the doctor, had all fled. The house was substantial, made of brick, and, fortunately, the doctor's office and supplies were all in order.

Early one morning, while I was still asleep in an upstairs room, an artillery shell exploded just outside the house, shattering window glass all over my bed. A fierce, all-day battle had begun. By that afternoon, the Germans had taken the town, and our aid station was behind their lines. Attacking German infantry surrounded us, and we ended up treating the wounded from both sides. At one point, a German officer came in, looked things over, and left.

That evening, while I was starting plasma on a soldier, a shell blasted a huge hole in the brick wall of the next room. I was thrown to the floor, covered in plaster and debris. Four wounded Germans were lying on the floor, completely buried under bricks and mortar. We were certain they had all been killed, but we dug them out, and none seemed any the worse for his experience.

Soon after, the fighting ceased and both sides drew back a bit, leaving us stranded in no-man's land. After finishing our work late that night, we finally withdrew to our own lines. Our battalion had been mauled. The 1st Battalion relieved us only to face a similar fierce attack the next day; the surgeon for that battalion was hit by shrapnel and eviscerated. Although his intestines were lying outside his abdomen, German prisoners carried him out and he survived.

In the first two days of fighting, my regiment lost 14 officers and 186 enlisted men. We passed the remainder of October and all of November in Holland, shelled during the day and harassed by enemy patrols at night. We spent most of the daylight hours under cover, as we were under continuous enemy observation.

Lamb to the Slaughter

In the midst of all the chaos, we took an opportunity to rescue a civilian casualty. Against all discretion, the family of a young Dutch girl had remained on their farm, literally in the middle of no-man's land. The girl had run outside to retrieve a lamb when German machine-gun fire from across the river hit her. I received word of her injury from an outpost we had stationed in the family's barn. I sent instructions about administering morphine until we could reach her.

the Germans had taken the town, and our aid station was us, and we ended up treating the wounded from both sides.



PHOTO: CORBIS

ONE SMALL STEP: Allied soldiers push over a small rise in the Netherlands near Eindhoven in September 1944, during Operation Market-Garden, a paratroop invasion meant to wrest control of the country from the occupying Germans. The mission was not a success, but some useful footholds were established.

The Germans were firing on anything that appeared in the open. Luckily, night was approaching. I rounded up some litter bearers and brought along a Catholic chaplain, who had volunteered to come along. We started out across no-man's land in the dark. The Germans were sending up flares, illuminating the whole area. We froze in our tracks whenever a flare was launched. When we arrived, we found a severely wounded girl. A machine bullet had pierced her groin and exited through her buttock, leaving a teacup-sized hole. We carried her back nearly a mile to an evacuation jeep.

We found out later that she survived. In fact, in the early 1990s, I received a phone call from Holland. Dutch television was arranging a kind of "This Is Your Life" reunion between the injured girl (now a woman in her sixties) and the Americans who had helped save her life so many years ago.

I had practically no pain and told them not to give officer would be needed. I then started to cough

She had been brought to the television studio by her daughter under a pretext and was astonished to be reunited with those of us who had come to her aid.

Under Heavy Fire

At the end of November, our division was pulled out of line and moved back to France. We expected our next mission to be across the Rhine. That was not to be. Less than three weeks later, the Battle of the Bulge broke out, and we were immediately committed to that front.

In December 1944, I was on detached service with the 99th General Hospital in Reims, France. My first inkling of the Bulge was a rumor in the hospital one evening that the Germans had launched a serious offensive in the north. At two in the morning, all of the 101st doctors who were working at the hospital were roused out of our beds and ordered to rejoin our units. To avoid detection by German planes, we moved out by blacked-out truck convoy and marched into Bastogne the next day.

We arrived on a scene of mass confusion, as Allied forces were scrambling to repel an attack from a powerful German Panzer division. In the battles that raged over the next several days, we treated casualties as best we could, hampered by a lack of personnel and equipment. We used jeeps and large trucks as ambulances, patching up the wounded and loading them in tiers on stretchers in the trucks.

At one point, my battalion took about 80 prisoners, including a German medical officer. I met him in a stable full of wounded men. We shook hands and went to work. After he had tended to his wounded, I sent him back to Bastogne in a jeep with one of my enlisted men. Much later, I found out that my man had taken all of the German officer's valuables, including his watch. I was not very happy about that.

When the Germans attacked with tanks and infantry, my battalion withdrew under heavy fire to woods on higher ground. There we dug in, our aid station consisting of an eight-by-eight-foot hole, five feet deep, where we spent the next two weeks a hundred yards behind the front line. We also dug holes for ourselves that we could crawl into, and we covered the tops with logs, branches, and dirt.

Shortly after we moved into the woods, the weather turned cold and snowy. We were lucky to have our holes for protection, and we put evergreen boughs in them to keep ourselves off the ground. During all this time, we were sustaining casualties from both shelling and small-arms fire. The wounded were piling up in Bastogne and there was little that could be done.

German aircraft nightly bombed the woods where we were dug in. When the weather improved, Allied planes patrolled the skies during the daytime. They were a mixed blessing, because they didn't know where the lines were and shot at everything that moved. One day, as I was riding in a jeep, I was strafed by one of our own planes. My driver and I hurled ourselves into a ditch and were lucky to avoid being hit by the 50-caliber machine-gun bullets they were firing at us. Our front line was also strafed by friendly fire. The first sergeant of one company was killed, and one of our men had his penis almost amputated by a bullet. He came from Brooklyn, and I still remember his name.

Brush with Death

After a brutal series of advances and retreats over a period of days, we found ourselves back in our original position. We had gone through a nightmare and gained nothing. And yet, despite our severely depleted condition, we were ordered to launch another attack. I was the only medical officer left, so the two battalions were my responsibility. I didn't sleep that night. After our experience of the previous attack, I had premonitions that this would be the end.

As it turned out, my premonition was not far off the mark. When the attack was launched on January 13, we met fierce resistance from Germans firing automatic weapons at us from cellars and windows of the houses that lined the road leading into town. We decided to convert a stone house that already had several wounded lying nearby into an aid station. Inside, we found evidence that the Germans had passed through;



me any morphine. I sent word that another medical

up blood. I thought, This is it, and said an Act of Contrition.

grenades and an antitank Panzerfaust were lying in the kitchen. As the injured were being placed on mattresses, a platoon sergeant and I moved to the rear of the house to survey our situation.

As we stood framed in the back door, a burst of German submachine-gun fire ricocheted off the stone doorjamb and hit us both. The sergeant, his head blown off, died instantly. Because I was taller, the burst missed my head but one bullet passed through my chest and another hit a rib and lodged in my lungs.

I broke out in a sweat and started feeling weak but managed to drag myself back to the room where the wounded were gathered and lie down. I had practically no pain and told them not to give me any morphine. I sent word that another medical officer would be needed. I then started to cough up blood. I thought, This is it, and said an Act of Contrition.

Shortly after I was shot, we heard the movements of Germans in the basement of the house. We were terrified that they would fire up at us through the floor on which we lay vulnerable, but the four soldiers who emerged had their hands in the air. "Let's shoot the bastards!" someone said. But I countered, "Hell no, let's make them carry us out of here!" The German prisoners brought us out on litters through two-foot-high snowdrifts, and we were evacuated by jeep.

I was taken to the 60th Field Hospital, where I was operated on that night. I still have the bullet they removed from my lung. Although I remember nothing after the transfer to an ambulance, I can still recall my relief when I woke up from surgery the next day. I opened my eyes and realized that the ward officer taking care of me was none other than Lawrence Kilham '40, an old HMS classmate. Kilham told the nurses to give me morphine for my pain whenever I wanted it, for which I was very grateful. Kilham, who died just last year, was one of several fellow HMS officers I encountered during the war, including (all now deceased): John Patterson '40, Hugh MacMillan '40, Joseph Warren '38, and Lamar Soutter '35, who came by glider into Bastogne with a surgical team during the Allied siege, and earned a Silver Star for his efforts.

After my recovery and another six months of surgical service, I returned to the States on the Green Plan, which was designed to facilitate the quick return of physicians to a country facing a severe doctor shortage due to the war. Medical officers received points for long overseas service, military decorations, and participation in battle campaigns. These points were then tabulated to determine preference for this program. I had a high priority for discharge as a veteran of two parachute invasions and three campaigns, including the Bulge, and as a recipient of a number of decorations. During my long postwar career as a surgeon, colleagues would occasionally remark on my calm in the operating room. But after what I went through in the war, nothing really fazed me. ■

TRADING PLACES: German soldiers captured during the Normandy invasion on June 6, 1944, carry a wounded soldier to aid under the supervision of Allied forces.



PHOTO: CORBIS

Bernard J. Ryan '40 practiced general and thoracic surgery in Bayshore, New York, for 35 years. For his service during World War II, he received the Silver Star twice, the Bronze Star, and the Purple Heart.



John W. Keller '49

Keller found the contrast between the lavish parties at Harvard and the suffering overseas unbearable, so he joined the Royal Canadian Air Force under the Civilian Pilot Training Program started by President Franklin Roosevelt.

Their finest HOUR

by BEVERLY BALLARO

FEW OF THE PATIENTS JOHN W. Keller treated during his 37-year-long career in internal medicine at Massachusetts General Hospital would have suspected that his lifelong dream of becoming a physician had taken flight with the pinning on of a pilot's wings.

During Keller's senior year at Harvard College, England was losing the war, its Royal Air Force struggling valiantly to hold off Hitler's Luftwaffe and delay the expected Nazi

An internist, a psychiatrist, and a surgeon reflect on their experiences of World War II

I was delighted to be flying the world's best aircraft, and in the world's best air force. We flew alone, un



ON DIFFERENT FRONTS: John Keller met his son Jeremy for the first time when the child was seven months old (above). After arriving in Egypt to complete their pilot training, Keller and his fellow officers posed in front of the Sphinx (right).

invasion. Keller found the contrast between the extravagant parties at Harvard and the suffering overseas unbearable. "So, in February 1941," he says, "I dropped out of Harvard College. By that time, two million Europeans, mostly Jews and forced laborers, had died, and our newspapers every day showed the agony and bloodshed in England as hundreds of Nazi bombers visited English cities almost nightly. But there was denial—incredible denial—of what was occurring. America was divided, with great rallies in Madison Square Garden proclaiming isolationism. The vote to start conscription passed in Congress by only one vote."

The spirit of isolationism extended to college campuses. A petition stating "Under no circumstance will I bear arms in defense of my country" was circulated in Harvard's dining halls in 1940 and signed by many undergraduates. "Far into the night," Keller recalls, "I would argue with my classmates about the tragedy in Europe. My friends goaded me with, 'If you're so sure Europe is in flames, why don't you join up?' So I did!" Unable to pay his way to England, Keller joined the Royal Canadian Air Force; under the Civilian Pilot Training Program started by President Franklin Roosevelt, he began reporting regularly to Logan Airport, where he learned to fly in a tiny, 65-horsepower Piper Cub.

In elementary flying school in Canada, Keller learned to fly old open biplanes called Fleet Finches. His instructor tied long red ribbons to the struts of Keller's plane when he made his first solo flight. "I guess it was a warning for other planes to steer clear," he notes wryly. He polished his training on Prince Edward Island, where he graduated to the powerful 450-horsepower planes called, ironically, Harvards. "The Good Lord was watching over me," he says, recalling how he once lost control of his plane after a landing and knocked over a kerosene pot marking the sides of the runway, spreading flames everywhere.

Near the end of his training, Keller received an offer to remain in Canada as an instructor, but he was determined to join the action overseas. Three weeks before the Pearl Harbor bombing, he both earned his wings and got married. "The world seemed to be coming apart," he says. "My wife, Patsy, and I just prayed that, if it broke in two, we might both end up on the same piece of it." Three days after Pearl Harbor, he boarded the TSS *Letitia*, a converted hospital ship, out of Halifax for the two-week journey to Liverpool.

"The North Atlantic Ocean in December was a fearsome sight," Keller remembers, "especially at night on the blacked-out deck in a convoy of 20 ships. The U-boats were at the height of their success, so we all wore life jackets during daily drills." While Keller made the crossing, his wife headed home to Boston unaware that she was carrying their first child; Keller himself would not learn that he was to be a father for another five months.

When he arrived in England, Keller was told that no Hurricanes were available for training, as the fighter squadrons needed every last plane to defend against the daily German raids. "Hurricanes," Keller explains, "were the real workhorses that won the Battle of Britain, even more so than the more celebrated Spitfires." To get his final flight training without delay, he boarded another troopship bound for the Middle East.

Keller was eventually ordered to report to No. 680 Squadron in RAF Cairo, where he learned photographic reconnaissance in Hurricanes. In July 1943, he began flying missions on Spitfires traveling at 28,000 feet and 350 miles per hour while documenting the movement of German troops and supplies below. The Spitfires carried high-octane fuel in extra tanks under their wings, enabling them to stay aloft for three or four hours at a time.

"On occasion," Keller remembers, "the engine would come to a complete stop at 28,000 feet—quite alarming, until one switched a few valves and restored the flow of gas to the Merlin Rolls Royce engine." He was later posted

the Spitfire, behind the best engine, the Rolls Royce Merlin, armed, unpressurized, and, for the most part, unafraid!"

to Libya and ended up flying a total of 81 missions over Greece, Crete, and the Dodecanese Islands, for which he would later be honored with the Distinguished Flying Cross. "Although," Keller quips, "there were those who said I was distinguished by my appalling navigation."

Keller had a number of close calls during his 81 missions. At times, his plane was subjected to antiaircraft fire from German 88-millimeter guns on the ground below. The bursts were inaudible above the noisy Merlin engine's 1,650 horsepower; only the tiny, blinking lights visible at the mouths of the guns and the black clouds beneath his plane signaled to Keller that he was being targeted. There were natural hazards as well: "On one occasion, I was returning from Greece at 28,000 feet when the Spit began to shake violently. I barely maintained my altitude and headed for the nearest base. After landing, I switched off the engine and discovered that ice had thrown the wooden propeller off balance; a foot was missing off one blade, and two feet off a second of the four-bladed prop."



Keller still has the bright red shirt he wore on "ops." Each pilot in his squadron sat on a two-inch foam rubber pad covering a two-inch inflatable dinghy and a four-inch parachute; the red shirt was for maximum visibility should Keller end up in his dinghy in the Mediterranean. Occasionally, this type of dinghy had been known to inflate accidentally, pushing the stick forward and sending the plane into a fatal dive. So, Keller carried an L.L. Bean hunting knife in his flying boot to stab the dinghy if the need arose. His only other weapon was a flare gun for sending up a signal in case he was forced into the water. Yet, Keller says, "I was delighted to be flying the world's best aircraft, the Spitfire, behind the best engine, the Rolls Royce Merlin, and in the world's best air force. We flew alone, unarmed, unpressurized, and, for the most part, unafraid!"

But Keller keenly appreciated the dangers he survived. His only brother, Russell, a naval officer, had been shot down and killed over Japan in 1945. When his service ended, Keller says, "I don't think I have ever felt such joy as I headed back to my wife and son, to America, and to *life!*" In his elation at arriving home, Keller left his full duffel bag leaning against one side of the car as he drove off from Boston's North Station. All his possessions, including his logbook, were never to be seen again.

Keller was admitted to HMS in September 1945, just after the war ended, a 24-year-old war veteran who was able to attend HMS in large part because of the Canadian equivalent of the GI Bill. His family still had to economize on everything, driving an ancient 1924 Model T Ford, brewing their own root beer, and even roasting rabbits that had been used for pregnancy testing at the Boston Lying-In Hospital. After his graduation from HMS, the hospital where Keller interned paid $24 a month plus room and board.

Yet Keller relished the postwar freedom and opportunities won with the sacrifices made by those who served and, in too many cases, lost their lives. Now a self-described pacifist and "old man who believes that to 'cry havoc, and let slip the dogs of war' seldom accomplishes any good," Keller nonetheless has no regrets about carrying out his duty. "The moral of all this," he insists, "is that extraordinary things can be done by ordinary people—and I am very ordinary."



AN AMERICAN IN PARIS: Henry Work treated many casualties of the long and bloody road to the Allied liberation of France.

Henry Work '37

"I LIKE TO TELL PEOPLE THAT I BECAME A PSYCHIATRIST IN six weeks," says Henry Work '37. Work had left Children's Hospital in Boston and gone to Buffalo, New York, to finish his pediatric training when his reserve unit, the 23rd General, was called up for active duty in World War II. "Of course, there wasn't much call for a pediatrician in the Army," Work says, "so they sent me to Walter Reed Hospital for training in malarial treatment and then to a six-week course in military neuropsychiatry, taught by one of my former HMS professors, M. Ralph 'Moe' Kaufman."

Work's first overseas posting was to Casablanca, where he was sent in 1943 with the 66th Station Hospital. The 6th General, a Harvard-based unit from Massachusetts General Hospital, was also there at the time, and Work met up with many acquaintances. He and his fellow officers were housed in a former nursery school and set up a hospital in the former Italian Embassy. While in Casablanca, Work also got his only wartime opportunity to put his pediatric skills to use. Army officials flew him to southern Morocco in an effort to impress a local sheik, whom they were courting as a guerrilla ally. Work was recruited to provide care to the children in the sheik's household.

When Work and the other men from the 66th were ordered on to Naples, they found a city in ruins ruled by an iron-fisted American general. The 23rd, which Work rejoined, was also stationed in Naples and included, to his delight, several HMS alumni (all now deceased) in its roster: George Marcy '32, David Clement '35, Murray Howland '37, and David Greene '40. Work and his colleagues formed a Neapolitan HMS medical society and conducted grand rounds over lunch once a month.

At his next assignment, a general hospital set up in what had been a small Italian mental hospital, Work's patients included German prisoners of war who had been captured during the Anzio campaign. "Ironically, these prisoners were, for the most part, grateful to be in Allied hands," he remembers. "They were happy to be away from the hell of battle and to live in decent conditions and receive good medical care for their wounds. We even sent some of these prisoners to the States for full medical treatment." Work deliberately did not discuss ideology or politics with the German prisoners during medical encounters. "In all my dealings with the POWs in Naples," he says, "I met only one openly hard-core Nazi, an officer intensely disliked by his fellow prisoners, who demanded that he be housed separately from them."

Work and his colleagues quickly discovered that some of their German prisoners had been well-trained as medical corpsmen. They selected a group of them and promptly put them to work as aides nursing patients in the hospital. The Americans also assigned their

new allies, the Italian soldiers, to guard their former comrades in arms, the Germans, in the prison compounds, an arrangement, Work says, that "didn't please the Germans very much."

Work accompanied the 23rd to Vittel, France, where two other Harvard units, the 5th and 6th, were stationed nearby. He remained on the psychiatric service there until the end of the war. The 23rd was flooded with patients when the Battle of the Bulge took place and the psychiatric service was particularly busy, Work says. When the injured arrived by the trainload, they included many cases of combat-induced neuroses and schizophrenia.

"Even though we didn't call it 'post-traumatic stress disorder' at that time, it was the same syndrome," he recalls. "We didn't have many resources to treat people—no electroshock equipment and few drugs. Mostly, we relied on talk therapy and sedatives like Barbitol to try to settle the young men down."

When Work returned from the war, he entered the field of child psychiatry. One unexpected benefit of his wartime experience, he says, was that it gave him valuable insights into late-adolescent psychology. "It's hard to express the euphoria felt by most people when the war ended," he says, "but, of course, there was a small group of psychopaths who had just thrived on the war and continued to do battle, in a sense, even after they returned home. I saw some of these people as patients as they struggled against family members, employers, and other authority figures." As a child psychiatrist, Work also found his wartime experiences helpful in dealing with former soldiers who went on to become young parents in postwar baby boom America.

Work himself is the father of four sons, born to his first wife, now deceased, whom he had met at Boston Children's Hospital before the war, and to whom he proposed marriage on the very day he returned home from the war. One of his sons served four years in the Navy and completed a tour of duty in Vietnam. As a veteran of World War II, Work says he had but one simple piece of advice for his son before he left for Vietnam: "Come home."

William V. McDermott '42

ALARMED BY THE PREWAR SPIRIT OF ISOLATIONISM that pervaded the nation, the secretaries of the Army and Navy traveled to HMS to make personal appeals to medical students to enlist, emphasizing that the coming battle could not be won without them. Despite these pleas, William V. McDermott '42, a third-year student, was one of only a handful of interventionists who rushed to join. Because they hadn't yet earned their medical degrees, these students had to sign up as medical administrative officers rather than as doctors in the Medical Corps. They requested and received from the dean at HMS special permission to accelerate the curriculum and were able to graduate one year sooner than planned. McDermott, newly married and barely out of his first year of residency, found himself shipping out overseas even earlier than expected, a 25-year-old surgeon assigned to an antiaircraft mobile battalion.

YOUNG SURGEON IN COMBAT: From the invasion of Normandy to the Battle of the Bulge, William McDermott saved the lives of many soldiers.



There were some pretty tough guys on board that experiences—but when the Statue of Liberty came

McDermott's family and new wife watched from the lawn of their summer house on Marblehead Neck as his ship glided slowly out of Boston Harbor for an unknown destination. Out in the Atlantic, the ship joined a convoy transporting 40,000 troops. The convoy was guarded by 12 U.S. destroyers. Also accompanying the convoy was the battleship *Texas*, a relic salvaged from World War I; in the event of a direct German assault on the convoy, the *Texas* had orders to carry out a suicide mission by steaming directly at the attacker, guns blazing, thus providing the convoy with an opportunity to turn tail and escape. But just in case the U-boat "Wolf Packs" succeeded in sinking their ship, McDermott and the others on board remained fully dressed over heavy two-piece woolen underwear, 24 hours a day, to optimize their chances for survival in the icy Atlantic.

Once in England, McDermott and thousands of others trained and waited anxiously; although everyone knew a massive invasion was coming, its precise timing and location were kept in utmost secrecy. "Although we expected D-Day to be difficult, nobody really anticipated just how rough it would turn out to be," McDermott said.

As McDermott's ship approached the beach at Normandy six days after the initial invasion, he was astonished to pass the battleship *Texas*, the same World War I relic that had accompanied his convoy overseas; the *Texas* was now busily providing heavy fire cover from her 16-inch guns. When the beach had been secured and cleared, McDermott's unit went in, transported in jeeps whose engines had been heavily greased and whose carburetors and exhaust pipes had been outfitted with extra long pipes jutting out several feet above water. These modifications permitted the vehicles to be driven underwater in case the landing ship tank that carried them failed to reach dry ground.

On the Front Lines

Once on Omaha Beach, McDermott encountered mass confusion: "Somehow or other, we ended up landing on the wrong section of Omaha Beach, but it didn't matter much, since the whole place was just chaos. The MPs were frantically trying to act as traffic cops as the Germans continued to shell all around us. Finally, we were directed to the nearest village, where we dug a large hole in which we could tend to the wounded."

McDermott spent the remainder of the war treating casualties of the inexorable, bloody American drive across France and into Germany. While he had fond recollections of local French people cheering their American liberators, with children scampering for candy and elderly Frenchmen clad in ancient military uniforms saluting them as they passed, he retained vivid memories of the tragedies—and miracles—he witnessed.

Once, he recalled, he was directed to Avranches, the site of a German attack on an Allied-held bridge of key strategic importance. When a flare lit up the sky, to better illuminate the target, followed by heavy shelling, McDermott knew that a summons to action would come shortly: "When I got to the scene, I found six to eight bodies fanned out on the ground and figured that, surely, they must all be dead. But, apparently, the shell had exploded exactly into the middle of their circle, and the shrapnel had been projected safely over their heads. They had been knocked unconscious by the sheer force of the explosion but were still alive."

In many other cases, the casualties McDermott treated did not escape so lightly. He remembered one soldier who had been shot in the groin while crossing a river. The wound was pumping blood at a furious rate. Unable to operate on the scene, McDermott, in desperation, stopped the bleeding by jamming his fist into the wound.

At the evacuation hospital where the patient was transported, McDermott bumped into some senior professors from Massachusetts General Hospital, who were instrumental in getting their young surgical colleague a transfer to a mobile surgical hospital unit. Mobile units were a relatively recent invention, and McDermott was eager to put his skills to use as close to the front lines as possible.

As Patton's army, which McDermott's unit eventually joined, fought its way through France and into Germany, McDermott gained enormous surgical experience, mostly working on chest, abdomen, and severe extremity wounds. Typically, his unit would find a cellar and set it up as a makeshift operating room. There was no shortage of wounded, both American and German, to keep him busy.

Legacy of Evil

Yet all the bloodshed McDermott witnessed, from the D-Day invasion to the Battle of the Bulge, could not have prepared him for the shock he experienced as one of the first Americans to enter a liberated concentration camp. "Before we went into the camp," he said, "nobody could have imagined the extent of the horrors contained there. I remember one officer who had seen the camp at Belsen; when he recounted the atrocities within, people thought that, surely, this fellow had to be exaggerating. But he wasn't, as I learned firsthand."

McDermott and his comrades had been in the midst of celebrating word

ship—soldiers who had gone through incredibly harrowing

into view, I've never seen so many grown men crying."



MILITARY INCISION: In a makeshift operating room in France, McDermott (left) removes a bullet from a soldier's chest.

from the German Army of its unconditional surrender when they received an emergency order to join the Third Cavalry in taking over the medical and surgical care of a concentration camp on the Danube River in Austria. The camp at Ebensee held Jews, Russians, and political prisoners. Many of the prisoners had been doctors, lawyers, professors, and businessmen before the war. But their brutalization at the hands of their Nazi tormentors had robbed them of any resemblance to their former selves.

"We know that doctors become more or less accustomed to the sight of illness, suffering, and death," McDermott wrote in a manuscript that became part of his book *A Surgeon in Combat*, "but we were all physically sick after our first view of the camp. These men were literally walking skeletons with every bone of their skulls and trunks standing out sharply; their bodies were bent, twisted and shrunken by disease and torture... Medically speaking, we were faced with an impossible situation. We watched men die by the dozens as we walked around. Five men dropped dead while waiting in line for the first meal we served."

Beginning the long process of restoring the wretched survivors to health required a tremendous amount of work carried out with few resources. Allied forces labored steadily to bring water and sanitary facilities to the camp and to set up delousing stations. Faced with a shortage of such basics as clean clothing, blankets, and dressings, they captured German depots to obtain what they needed. The former prisoners' barracks needed to be emptied, fumigated, and scrubbed, and all of their old blankets and uniforms had to be burned. Only then could the doctors begin to isolate patients with typhus, tuberculosis, and other infectious diseases and attempt to separate cases into a ward system by medical category.

"What it boiled down to," McDermott wrote, "is that three small, specialized surgical units were trying to run a city in which all the inhabitants were in the last stages of starvation, most of whom had one or more horrible diseases, and where there was no elementary sanitation, housing, clothing, or food."

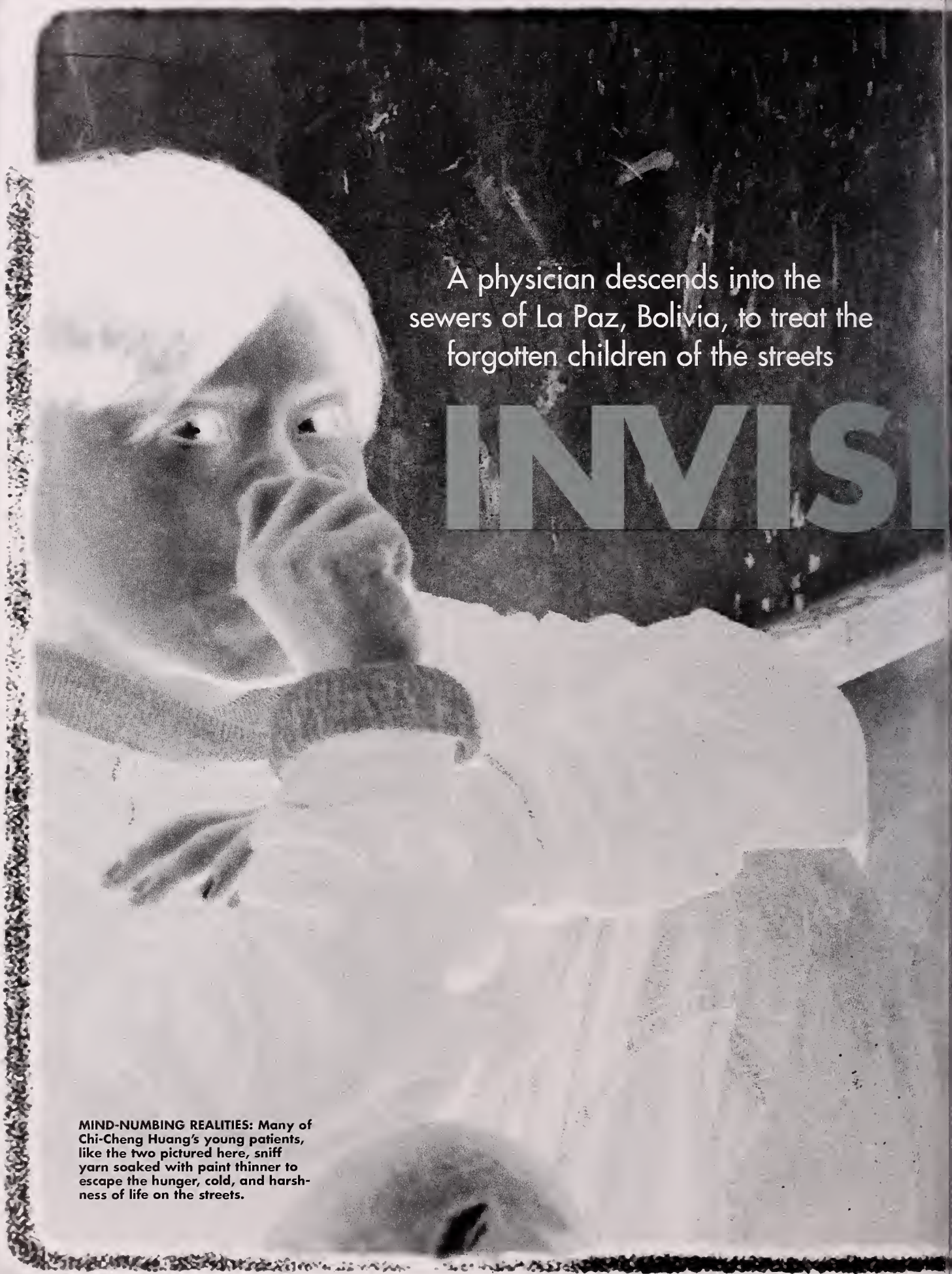
McDermott and his comrades received help from none other than the Germans and Austrians of the district. U.S. Army commanders had ordered that all locals be put to work in the camp, cleaning up the filth and washing the bedridden former prisoners, partly to alleviate a severe labor shortage, but especially to make them experience firsthand the hideous truth of the regime with which they had collaborated. The Austrians were pressed into service loading and transporting on carts hundreds of corpses from the camp to the outskirts of the town. There, they were made to dig individual, marked graves in an area prominently designated "German Atrocity Cemetery."

When McDermott's service in the now-secure European theater ended shortly thereafter, he was put in command of a MASH unit and began training for the invasion of Japan everyone assumed would be inevitable. The dropping of the atomic bombs spared him that fate. More than five decades later, he still found himself profoundly affected by the memory of his troopship gliding into New York Harbor on Christmas Day: "There were some pretty tough guys on board that ship—soldiers who had gone through incredibly harrowing experiences—but when the Statue of Liberty came into view, I've never seen so many grown men crying. The memory of it still makes me emotional."

After the war, McDermott, the recipient of two Bronze Stars, finished up his residency, made easier by the experience he had gained as a surgeon in battle. Yet, despite all that he accomplished, he echoed the typical modesty of his generation. "We weren't heroes," McDermott insisted. "We weren't heroes at all. We were just doing what was right and what had to be done." ■

Beverly Ballaro is associate editor of the Harvard Medical Alumni Bulletin.

William V. McDermott '42 died on July 19, 2001, shortly before this article went to press.



A physician descends into the sewers of La Paz, Bolivia, to treat the forgotten children of the streets

INVISI

MIND-NUMBING REALITIES: Many of Chi-Cheng Huang's young patients, like the two pictured here, sniff yarn soaked with paint thinner to escape the hunger, cold, and harshness of life on the streets.



BLE CHILDREN

IN DOWNTOWN LA PAZ, JUST BEFORE MIDNIGHT, 24-HOUR vendors are busy grilling hot dogs and hamburgers in their yellow metal booths. A woman wearing a stained apron carries a bucket of water from behind her burger stand and dumps it in the street. The brown water hits the black pavement and ripples outward, then recedes to form a new puddle. Nimbly skirting that puddle is a small Aymaran boy in a dirty, grayish-white hat and frayed blue jeans. He hovers near the burger stand, then turns slowly, surveying the people. When he thinks no one is watching, he darts between

by CHI-CHENG HUANG, *with* IRWIN A. TANG

The children have smeared the walls of the passageway

two of the booths, crouches down, and crawls through a fence hole that looks as if it were made for dogs.

"Hey!" I yell to the boy. He turns, startled, then ducks his head back and hollers through the hole in the fence, "Hey, guys! Dr. Chi is here! Dr. Chi is here!"

The boy waves his arm, urging me to hurry. I crawl through the hole in the fence. Five cement steps lead to a worn dirt path. Down the path to the right is a five-foot drop-off, at the bottom of which sits a rectangular cement box open on one side. It is large enough to hold several street children, but too cramped for adults. Only the smaller children tend to stay there.

The boy and I turn left and head down a steep path leading to the edge of a deep valley. Within this valley runs a gigantic sewage canal, which carries the city's waste into the La Paz River. A misstep on the path would mean an ugly fall down a 75-degree slope lined with trash and excrement, into the valley of the sewage canal—a bad way to die. But living at an altitude of 12,000 feet, among the mountains, has accustomed Pacenas to climbing hills, and the street kids navigate this path several times a day.



We descend on all fours to keep from falling. It's hard to keep my balance, as I'm carrying a tackle box full of medicine. Above me, I hear the sizzle of hamburgers; below, the roar of raw sewage returning to nature. I look up at the fence. No one is watching. I feel silly, even though I've done this many times now. Small rocks tumble down into the valley, at the edge of which stand four boys and a girl.

"Be careful. Hurry!" Be careful and hurry. A necessary contradiction for their everyday survival. I reach the bottom of the decline. The kids surround me and call out their various ailments.

"I have a sore throat!" Maria shouts.

"Look at my cut," Enrique says. "It has pus in it. Do you see? Do you see?"

"My eyes. My eyes," Lupe whines. "They itch."

"I have diarrhea! Bad diarrhea," Jorge groans, cradling his belly.

"I can only help you one at a time," I say. Enrique takes one of my flashlights and shines it at Maria. As they wait their turn, the other kids press their fists to their noses to sniff yarn soaked with paint thinner. A dog steps toward me and growls. Lupe bats the dog away. Next, I examine the eight-year-old boy I had spotted sneaking through the fence. Eight razor-blade scars crisscross his left hand. Last time there were seven.

"What happened, Pedro?"

"It's just a cut," he giggles.

"How did it happen?"

"I was drunk!" He stumbles about, and the kids laugh.

"What did you use?"

"A razor blade. It's because I'm tough!" Again they laugh.

I clean his wound and move on to the next child. After tending to their ailments, I ask the children how they're doing. They all say that they're fine. I ask them if they would like to sing songs. They say yes, but they don't mean it.

"Look, Dr. Chi." Jorge points to the top of the hill. Two military policemen in freshly pressed green uniforms are peering down at us. One policeman rests his hand on his club. He turns to his partner, who doesn't take his eyes off of us. Foolish me; we were being watched all along. And now we're trapped. The policemen stand before the hole in the fence, the only safe way out. Sweat begins to pour down my face. The kids suddenly quit joking and stand eerily quiet. Orange fluorescent streetlights cast a surreal light on the entire scene.

We still have two options. A passageway about a foot wide runs along the sewage canal. The children have smeared the walls of the passageway with their own feces to discourage intruders; fleeing that way would be like passing through an enormous intestine. At the end of the walkway is a plank that we could climb to reach the top of the encased sewage canal. Once there, we could walk to an overpassing bridge and climb up. But the bridge is often patrolled by police.

with their own feces to discourage intruders.



PHOTOS: COURTESY OF CHI-CHENG HUANG

LIGHT TOUCH: Chi-Cheng Huang examines a young patient by flashlight underneath a bridge, where many street children take refuge at night (left). Forced to flee from the abuse or neglect of their biological families, some street children turn to each other for comfort and support (far left).

Our other option would be to proceed along the sewage system toward the river. The walk would be about a hundred yards, but at the end of it, we would have nowhere to go—except to jump into the second most polluted river in the world, along with thousands of gallons of excrement.

The boys form a semicircle in front of Maria and me, readying themselves to be beaten. I begin packing up. Pedro's voice trembles, "Don't leave! Please don't leave!" If I leave, the police will do whatever they want, free from the observing eyes of any adult.

"I won't leave."

The policeman who had his hand on his baton—the senior, it seems—begins to descend the dirt path. The other follows, slipping slightly in his heavy boots. I can sense the children's bodies growing stiffer. Their brown eyes widen as they glance back at me. What can I do? No one takes a step. No one says anything. The policemen will be down here within a few minutes, even if they're careful and do not hurry. Juan looks around. He has had his fair share of fights and near-deaths, and his 15-year-old mind turns quickly. He pipes up, "Let's start singing!"

The children open their mouths and sing. In the beginning, the song is simply a collection of trembling voices afraid to offend the police, afraid to let the world hear them. But the song grows stronger and stronger, until the tepid murmurs transform into shouts of courage and hope. They sing about a God whom they rarely see in their world. A God who is truly a far-off myth—a being they know only through nearly unbelievable stories. They sing of His beauty and His splendor, and how He protects the weak and the helpless. The voices bounce off the walls of the sewage canal, up, out, into unsuspecting ears. The vendors stop their cooking and peer down into the valley to witness—what? A miracle?

The policemen finally step down to the edge of the sewage valley. They are on the same level as we are. I step forward and block their path to the children. Clocks throughout the city strike midnight. My heart starts to pound. Anger swells up within me. Policemen are the enemies of my children. They rape the girls. They kick the boys in the crotch. They break the bones of children, leaving them crippled or limping. Suddenly I am ready to take the beating. The children's song has shaken the fear out of me. The police approach.

"Hello," I stick my hand out to shake. No response. I tuck my hand back into my jacket and tightly grip

The children sniff their paint thinner, which blunts

my metal flashlight; if I can defend the children for even a couple of minutes, they may have time to rush up the hill and escape.

"Hello," says the senior policeman, "what are you doing here?"

Silence. We look at each other.

"What are *you* doing here?" I counter. "Don't you have streets to patrol?"

"It's none of your business what we do. Show me your identification."

"I work with the street children from ten at night to two in the morning, Monday through Thursday. I also work at two orphanages."

The policeman looks me in the eyes. "These children are criminals and drug addicts, you know." Has he heard a word of their song? Has he glanced for even a millisecond at their faces? Our only chance to escape this beating is to make the police hear the inaudible, see the invisible. To transform, in their eyes, the children into children.

"Well," I say, "some of them do sniff thinner. But do you know why? Do you know how these children end up on the streets?"

The officer looks surprised by my forwardness. "Their parents are alcoholics," he says, "and sometimes just abandon them." I can't tell if he's saying this to express sympathy or to add further condemnation.

"Yes," I say, "most of them are from El Alto, the poorest suburbs. Poverty can cause mothers to abandon their own children, fathers to beat their sons and daughters. Poverty can lead to alcoholism. Some of these children have been molested by their own kin. They are running away from the worst things you can imagine. They end up on the streets sniffing thinner and trying to forget their past, present, and future. Look at them."

This cop makes only about 60 American dollars a month, but he may not understand the desperate poverty from which these kids are seeking escape. He may never have been beaten or abused. He may not empathize at all with these children, whom he regards as animals.

"Yes," he says. "It's sad." He glances at his partner, then asks me, "Are they using drugs?"

"You'd have to ask them about that."

The officer looks at the children for the first time. He looks at them as if he finally considers them to be real—living, breathing. Perhaps he imagines himself asking them questions, as fellow human beings.

"By the way, your police chief knows who I am and has a letter detailing what I do."

"Very good," the officer says. "How long are you going to stay here?"

"For about a half hour."

"Very good."

The policemen shake my hand and start their ascent back up the hill. Behind me, the children begin singing another song, softly.

The men take an eternity to reach the top of the hill. As they crawl through the hole in the fence, a feel-



the cold Andean winds and deadens their hunger.

ing of relief floods through me. The children look at each other, grateful for another half-hour free from beatings. They position their fists against their noses and deeply inhale their thinner. Entering a state of numbness, they look vacantly at me.

"Listen, kids. The police will return in a half hour, without a doubt. So you guys need to leave right away. Do you have a place to go where you'll be safe?"

Juan steps forward. "I have a secret hiding place." He looks at me from beneath his raggedy red cap. Does he want me to stop him? If he shows the other kids his hiding place, it will no longer be secret. His enemies will be able to find him and stab him; even the police may eventually learn of his hideout. "I know of this place," he continues without hesitation, "down in the sewer system, toward the river. There's this little hole in the cement block where I sleep. No one can find me, and the sewage keeps me warm. There's room for all of us."

The kids stare at Juan. "Maybe you should all go with Juan," I say, "because the police will be back soon."

The children all nod.

"Very well, then. When I get to the top of the hill, I will check for any police on the bridge, and then I will wave you clear. You can get to the hiding place. Does that sound good?"

"Yes, Dr. Cheeeee."

The children sniff their paint thinner, which blunts the cold Andean winds and deadens their hunger. Pedro asks me, "When are you coming back?"

"Tomorrow night. Don't worry. Be careful. Good night."

I climb the hill, constantly losing and regaining my footing. When I reach the top, I look down at the kids, crowded together, a small choir, a chorus for their own tragedy. They're watching me for a sign. The only people on the bridge are street vendors. A taxi honks as it zips by. The children's eyes are fixed on me. I give them a wave. Five boys and one girl run across a field littered with trash and feces. They disappear into the night. ■



UNDER A WATCHFUL EYE: Huang hopes to spark international awareness of the plight of Bolivia's street children, two of whom are shown here in a favorite hangout in the Plaza of the Heroes, where they often play soccer.

Chi-Cheng Huang '98, a fourth-year resident in the Harvard Internal Medicine–Pediatrics Residency Program, has been traveling to La Paz, Bolivia, to treat street children and child prostitutes since his fourth year of medical school, in 1997. Irwin A. Tang, a freelance writer in Austin, Texas, is the author of The Texas Aggie Bonfire: Tradition and Tragedy at Texas A&M.

This essay will appear in expanded form in a forthcoming memoir on Huang's work in La Paz. The children's names and locations have been changed to protect their identities.

Huang would like to thank Park Street Church, Brigham and Women's Internal Medicine Department, Harvard Internal Medicine–Pediatrics Residency Program, and individual donors for their continued support of the Bolivian Street Children Project. To learn more, visit www.bolivianstreetchildren.org, or contact Huang at chuang30@hotmail.com.

Stand &

Physicians who become pregnant during residency often discover

by Joshua Sharfstein and Yngvild Olsen

One morning in December 1999, my beeper interrupted a teaching seminar, and I found myself talking to an intensive care unit clerk. "Dr. Olsen is unavailable," she said. "Who is speaking?"

"Her husband."

"Oh, my. Please hold."

My mind flashed to Yngvild's repeated 32-hour shifts as a third-year medical resident in a community hospital outside Boston, and how she was often too busy to eat or drink, let alone sleep. Owing to a realignment of primary care practices in the community, the rotation was now fully twice as busy as it had been just a year earlier.

I also thought about our baby, who was expected to arrive in just two months. A pediatrician's mind can rifle through a thousand »


Deliver
that the pains of labor can extend well beyond the delivery room



A pregnant resident has pressing personal needs. She maternity leave, or just time off her feet. She's a living

nightmare scenarios in less than 30 seconds. Then someone started speaking.

"Hi," a voice said, as if at the end of a long tunnel, "I fainted on rounds in the intensive care unit. I'm lying on the floor of the conference room, and the cardiologist is taking my blood pressure. Can you come pick me up?"

Having a baby at the end of Yngvild's residency was not our plan. Knowing that most couples take three to six months to conceive, we envisioned a perfectly timed arrival for our first child a few months after Yngvild finished her training. Because of the possibility of problems getting pregnant, we did not want to delay trying for too long. And then, presto: Within three weeks, we were staring at a positive pregnancy test. One spin of the pregnancy wheel told us to expect a baby three months before the end of Yngvild's residency.

Problem One: Pregnancy contradicts a key assumption of residency. Residents are supposed to work for the hospital and their patients, not for themselves. This mutual understanding explains why residents embrace schedules requiring upwards of 80 hours per week and why hospitals provide salaries that are rarely enough to cover loan repayment. Successful residents just play along with the game, always ready to show up for more work. A pregnant resident, however, has pressing personal needs. She may need time off for pregnancy complications, time off for maternity leave, or just time off her feet. She's a living symbol of how residents have lives outside the hospital.

One Mother's Story

My mather was ane af abaut ten wamen in her medical schaal class at Yeshiva University—and ane af anly five who lasted beyand the first manth. Alphabetically, she was paired with a scrawny New Yarker far an anatamy partner. They met in September, began dating by Navember, and were married in June.

After graduating from medical schaal, my parents began pediatric internships at different haspitals in the Bronx. Accarding ta family legend, their canflicting call schedules affarded them anly ane weekend together all year—the weekend af my canceptian. A few manths later, my mother wrate af my impending arrival ta the pediatrics department at Tufts Medical School in Bastan, where she had been accepted far the final twa years af training. But her receptian there was anything but cardial.

My mother spent her first few months worrying abaut haw she wauld return ta wark after just six weeks af maternity leave—a meager amaunt of time off that her fellow residents, men and wamen, nanetheless quickly began ta resent. I was born an September 26, and my mather returned to a schedule that required in-haspital duty every ather night and every ather weekend—mare than 110 haurs per week. My father, then a psychiatry resident, aften braught me ta the haspital ta sleep avernight in my mather's call raam. Flaating Haspital at Tufts permitted this arrangement, but nat the affiliated St. Margaret's Hospital, which blacked aur arrival just priar ta a 72-hour weekend shift. My mather threatened ta walk aff the jab. A raam was quickly faund far my dad and me—at the nearby Hame far Unwed Mathers.

As the year pragressed, my existence created canfusian amang the staff pediatricians. Was my mather a resident ta be taught in the usual grueling manner abaut haw ta care far babies, or was she a parent wha shauld have time ta spend with her awn? When I was nine months ald, my mather was called inta the affice af the directar af her training pragram. It is clear, he said, that yau will never practice pediatrics. Yau are a dilettante. Our pediatrics department daes nat exist to train dilettantes. My mather thaught af haw much she missed me and said that she wauld leave the pragram.

The man wha presided over the Tufts pediatrics department during my mather's time there still lives and

may need time off for pregnancy complications, time off for symbol of how residents have lives outside the hospital.

Problem Two: Resident schedules are not ideally suited for carrying a baby to term. In the largest study to date, published in the *New England Journal of Medicine*, Mark Klebanoff and colleagues reported that residents who worked more than a hundred hours a week had more than twice the rate of preterm delivery (about one in ten) as those who worked less (about one in twenty-five). Other studies have linked long working hours to growth retardation, premature labor, and hypertension during pregnancy.

Problem Three: Problems One and Two work in collusion with each other. Pregnant residents want to continue being successful, so they may minimize their need for rest and extra accommodation, to prove that the hospital and their patients remain their top priorities. Yet during difficult rotations, such bravado can pose risks for the health of the baby and mother.

We fell right into the trap. Although her residency program's leadership was enthusiastic about the pregnancy and offered a generous maternity leave, Yngvild insisted on maintaining her full schedule to show that her pregnancy was irrelevant to her doing her job. Yet the job was just too taxing.

In a Family Way

Anyone in touch with residents today knows that our experience was hardly unusual. From 1991 to 2000, the percentage of female medical students rose from 38 to 45 percent. National data also indicate that

warks in the Bastan area. In a small office on the third flaar af Flaating Haspital, he helped me ta understand a half-century af wamen's experiences in the cantext af his awn travails. "When I was an intern, I warked every ather night and every ather weekend," he said. "The fellaw with wham I alternated nights and weekends develaped tuberculosis, so I was warking every night and weekend while waiting far same time aff ta ga get married." Despite his persanal sacrifices, which included ance warking 18 days straight, his haspital refused ta pramote him ta a residency pasitian because anather Jewish dactar had already been hired.

The physician went an to describe a time when wamen faced similarly intense resentment far their mere presence in the medical prafession. Fram his first postwar teaching experience at Children's Haspital in Bastan: "On the day that Children's accepted its first female hause officer, the residents all ware black bands an their arms." Even 20 years later, he recalled that, when my mather arrived at Tufts, the training pragram explicitly preferred men ta wamen "of equal ratings." The ratianalizatian? The haspital needed referrals fram practicing pediatricians, and it was assumed that wamen with children wauld not practice pediatrics beyond their residency.

In 1970, after leaving Tufts, my mather jained a part-time residency pragram that had recently started at Children's Haspital. Over twa years, she campleted her third year af training, with plenty af time far me. Unfortunately, the pragram was saan abalished. My mather, meanwhile, has since warked mare than 25 years as a pediatrician.

—*Jashua Sharfstein*



FAMILY PRACTICE: Joshua with his parents, Margaret and Steven.



Even the most generous parental leave is no solace hundred hours on the job. The solution is to make

about half of women doctors with children delivered one of them during their training. Yet hundreds of young doctors are heading into a demographic vise. Just as they may wish to have children (at the reasonable age of, say, 30 years), it's becoming harder—not easier—for them to do so.

Both the American Board of Pediatrics and the American Board of Internal Medicine have adopted policies limiting the total time off during three years of residency—including vacations—to three months. Any woman who has a baby during her residency, according to the new rules, must do extra clinical rotations beyond the originally scheduled completion of training in order to become board-certified. These professional boards—and others in the subspecialties—have now made having a baby during residency essentially incompatible with starting a fellowship on time or becoming a chief resident. Ironically, at the same time that leaders promise support for improving diversity in academic medicine, they're kicking women off the bottom rung of the career ladder.

In reality, many program directors bend the board's rules. Some programs are very supportive of pregnant residents; others are notoriously difficult. Two of our friends in Boston suffered through contentious disputes with their training programs about maternity leave. Many of our other friends have settled for eight weeks, knowing full well that their program directors could declare even such skimpy time off to be in violation of the board's requirements.

The rules leave those in charge of residency in near complete control of a pregnant resident's life and career, with most decisions made on a case-by-case basis. The Accreditation Council on Graduate Medical Education (ACGME), which certifies all training programs, sets no standards on how programs should handle a resident's pregnancy. Even in the very training programs that teach doctors to support families, residents who become parents can face difficult and dangerous hurdles. "Pediatric residency programs and their institutions barely provide even the basic level of family support for their trainees," one researcher recently complained to the *Archives of Pediatrics and Adolescent Medicine.*

Fifteen years ago, Daniel Federman '53 and colleagues at Harvard Medical School concluded in the *New England Journal of Medicine:* "The current climate of residency is in direct conflict with the realities of a young person's life—the time needed to develop a relationship with a partner; the age limits of fertility; the time needed to carry, breast-feed and care for a baby; and the need to sleep in order to function effectively...We recommend an investigation into a fundamental change in the current pressures of residency programs."

Did anyone listen?

Doctoring the System

Yngvild's blood pressure came back up with oral rehydration, and the residency program allowed her to miss the rest of her call nights at the community hospital. She felt terrible that she could not meet her obligations in the hospital and that other residents had to cover for her.

So Yngvild concentrated on making it through to delivery—one day at a time. Sam's arrival on his Valentine's Day due date not only transformed our lives, but also had other ripple effects. In the months afterward, five other residents in Yngvild's program became pregnant, and all came to her for advice.

But there was only so much advice to give. How can it be that despite untold numbers of pregnant residents, the system of medical training has not responded with fundamental changes? In our view, reasonable treatment of pregnant residents requires that working conditions for *all* trainees improve.

While we do support efforts to guarantee paid parental leave and sick coverage during pregnancy, we do not support only making special rules for pregnancy. That's a recipe for a two-tiered system, which is sure to generate anger and resentment throughout teaching hospitals. The pregnant resident already stands as a symbol of someone who creates unreasonable demands on traditional medical training. Setting up the pregnant resident as an exception to the rule will only further exacerbate professional discrimination.

Even the most generous parental leave is no solace when the first week back requires more than a hundred hours on the job. The solution is to make residency training more humane for everyone. Large residency programs should develop robust coverage systems; small programs should contribute to an insurance pool to fund replacement physicians to step in when needed. ACGME should set and enforce hours restrictions, end-

when the first week back requires more than a residency training more humane for everyone.

ing hundred-hour work weeks that have never been shown to be necessary for patient care or resident education. To the contrary, studies of residents have amply demonstrated that excessive hours lead to depression and an increased risk of automobile accidents.

As young doctors seek out more reasonable schedules, the natural competition among programs for top candidates should gradually push training to become more humane. ACGME can hasten the process by publishing the schedules of each program before match time.

With Sam now 18 months old, we have already begun to romanticize Yngvild's pregnancy. We joke about her spill in the intensive care unit and may someday even forget our fear that something could have gone horribly wrong.

If we continue down this slippery slope, we hope that some resident in the future—Sam?—will keep us honest. "Reasonable hours, workloads, and parental leave not only make sense for hospitals in the business of training good doctors," he'll say, "but they also are essential to treating men, women, and children in medicine fairly.

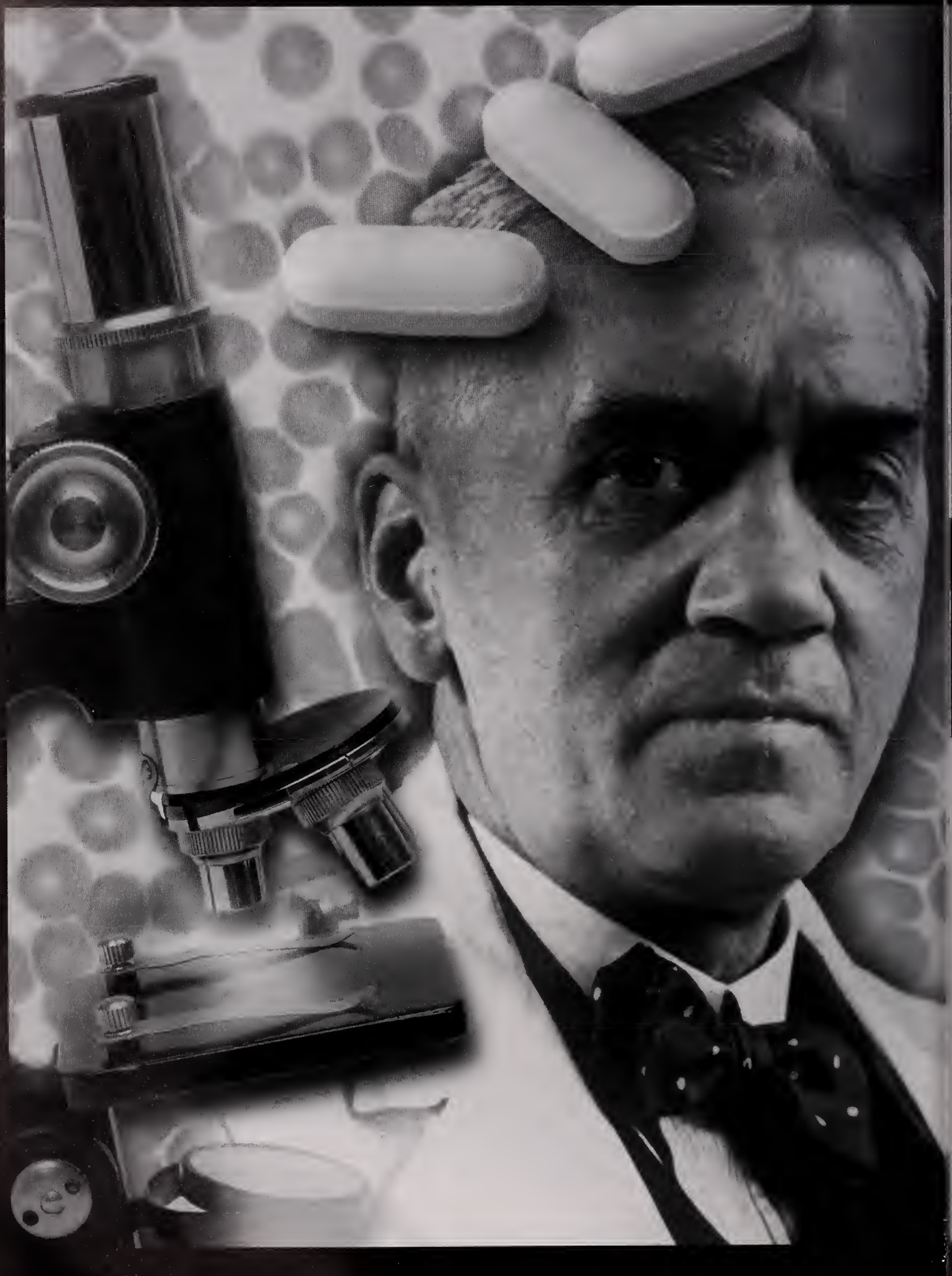
"What?" he'll add, when he sees our reaction. "Wasn't it always this way?" ■

Joshua Sharfstein '96 is a pediatrician in the Washington, DC, area. Yngvild Olsen '96 is a fellow in internal medicine at the Johns Hopkins School of Medicine.

Permission to quote from "Pregnancy During Residency" was granted by the New England Journal of Medicine *(Sayres M, Wyshak G, Denterlein G, Apfel R, Shore E, Federman D, 1986;314:418-423). Copyright 1986, Massachusetts Medical Society. All rights reserved.*



THE NEXT GENERATION: Sharfstein and Olsen hope their son Sam will be able to enjoy ample paternity leave.



by DAVID A. SHAYWITZ AND DENNIS A. AUSIELLO

THE DISCOVERY CHANNEL

WHAT DOES THE UNFOLDING SUCCESS OF THE STATINS TELL US ABOUT THE NATURE OF MEDICAL BREAKTHROUGHS?

NOW THAT THE SEQUENCE OF THE ENTIRE HUMAN genome has been published, medical scientists have been thrilled by the ready availability of so many promising targets for new medications. Whether the actual number of human genes—and corresponding proteins—turns out to be closer to 100,000 (the original assumption) or 40,000 (the latest estimate), an abundance of proteins will become available for research and drug development.

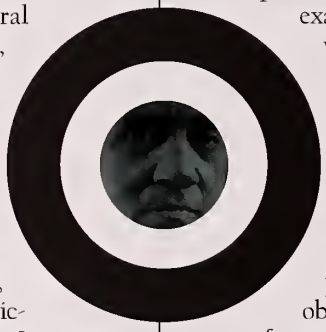


Yet, if history is any guide, the process of moving from promising target to useful therapy may hold many surprises. Consider the statins. Initially discovered in a search for new antibiotics, statins are now the therapy of choice for persistently high cholesterol. Exciting new data suggest that statins may also play a role in combating inflammation, bone disease, and dementia. More than 13 million Americans now take a statin, with the number of users expected to skyrocket to 36 million if the recently revised guidelines for cholesterol management as set forth by the National Institutes of Health are followed carefully. The statins' meteoric rise to fame both illustrates how medicines are created in the molecular era and provides a compelling story of scientific discovery. >>

SCIENTISTS TRADITIONALLY RELISH CONTRADIC
NEW INSIGHTS. "NO PARADOX, NO PROGRESS,"

Discovery of the Statins

The statins have their roots in Japan, where Akira Endo and his colleagues were hunting for new antibiotics in the 1970s and early 1980s. Because many microorganisms require cholesterol for growth, Endo and his group were hoping to identify novel factors that would inhibit an enzyme—HMG-CoA reductase—shown by basic researchers to be critical for cholesterol synthesis. Endo looked especially to fungi as a source for these factors, following in the tradition of Alexander Fleming, whose 1928 discovery that bacterial growth was inhibited in the presence of the Penicillium mold led to the isolation of the drug penicillin.



Ultimately, Endo isolated several inhibitors of HMG-CoA reductase, including one—mevastatin—from another strain of Penicillium. Similar research by other groups led to the isolation of an entire family of related compounds, collectively known as statins. While Endo was studying the first statin, two American physicians, Michael Brown and Joseph Goldstein, were learning how the human body, particularly the liver, processes cholesterol. In a remarkable series of investigations beginning soon after Endo's first report on a statin, they showed—first in cultured cells, then in animal models, and ultimately in patients—that statin use could dramatically reduce the level of low-density lipoproteins (LDLs) in the blood by causing liver cells to take up LDLs more avidly and use the material for themselves. For their efforts, Brown and Goldstein were awarded the Nobel Prize in 1985.

By the time Brown and Goldstein were publishing their work on statins, population-based studies had demonstrated that high cholesterol was a major risk factor for the development of coronary artery disease. Knowing that high cholesterol is harmful and that the statins could lower cholesterol, investigators next sought to learn whether statins would help the hearts of patients with high cholesterol. The answer, from a number of studies, turned out to be yes: statins help patients who have high cholesterol, regardless of whether their coronary arteries are already diseased. The first statin approved for use in the United States, in 1987, was lovastatin, which had been isolated from a different fungal strain by scientists at Merck. In the following years, industry chemists created new members of the statin family, including pravastatin, simvastatin and, more recently, atorvastatin and ZD4522. Of these, atorvastatin (Lipitor) is the most popular, bringing Pfizer more than a billion dollars a year in revenue.

Unexpected Benefits

The remarkable effectiveness of the statins surprised some of the scientists who had been examining the drugs closely. The mystery was why the medicine seemed to work much better—and more rapidly—than it should. The risk of cardiac death was expected to diminish gradually, as a result of lowering LDL levels in the blood. When cholesterol is reduced by a surgical procedure, for example, it takes many years before patients seem to benefit, and it was not obvious why statins would work any faster. Indeed, when the coronary arteries of patients taking statins are evaluated, the finding is that it takes months to years before the vessels appear less diseased. Why, then, do the statins seem to benefit patients as rapidly as 16 weeks after the start of treatment?

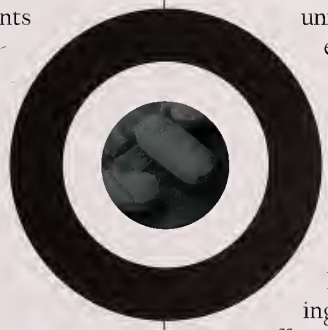
Scientists traditionally relish contradiction, because it is often the source of new insights. "No paradox, no progress," said the great Danish physicist Niels Bohr. In the case of the statins, the unexpected answer seems to be that these drugs may prevent heart attacks not only by decreasing cholesterol, but also by modifying the immune system.

Several studies from the Boston-based CARE investigators, for example, have identified a link between heart attacks and systemic markers of inflammation and have suggested that statins may help by decreasing the degree of inflammation. A recent elegant laboratory study from Switzerland provides further support for this theory, demon-

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strating that statins can directly downregulate an over-reactive immune system. These results not only suggest that statins can help heart disease patients by decreasing coronary artery inflammation, but they also offer hope that statins may be useful in organ transplantation and in the treatment of autoimmune diseases, such as multiple sclerosis, rheumatoid arthritis, and psoriasis.

As if these data weren't exciting enough, several observational studies have demonstrated an association between statin use and a decreased risk of hip fractures; these studies represent the initial clinical follow-up of the demonstration—first in cultured cells, then in rodents—that statins might be able to increase bone density. Other recent observational studies have suggested that patients who use statins are less likely to be diagnosed with dementia or Alzheimer's disease. While additional research must be done before a causative relationship can be established, the results of these clinical studies are certainly tantalizing.



Lessons from the Statins

The statin story, even as it continues to evolve, offers five important lessons about contemporary medical discovery.

Lesson One: Academia and industry are symbiotic. Medical discovery will increasingly require sustained partnerships between inquisitive physicians and thoughtful laboratory researchers, and between academic investigators and industry scientists. The development of the statins into a clinically useful class of drugs resulted from fundamental research into the biochemistry of cholesterol metabolism, the willingness of pharmaceutical companies to develop and manufacture statins, and a range of clinical studies that demonstrated, first, that high cholesterol was a risk factor for coronary artery disease and, second, that statins could effectively lower the level of cholesterol in the blood. Even the most current ideas about the statins represent the combination of careful laboratory work—suggesting that statins might increase bone density, for example—with clinical research examining the effects of statins on patients taking the medication.

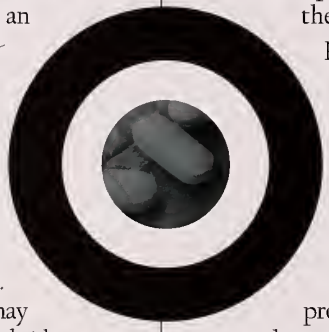
Such collaboration is increasingly the hallmark of medical discovery. The discovery within the past decade of STI-571, an exciting new drug for chronic myelogenous leukemia (CML), began with the detailed characterization of patients with CML by academic physicians, and the discovery around 1960 that most of these patients seemed to have white blood cells with a specific genetic abnormality, the Philadelphia chromosome, resulting from a DNA swap between chromosomes 9 and 22. Meticulous laboratory research by university scientists ultimately revealed that, as a consequence of this abnormality, patients with CML express a unique enzyme, Bcr-Abl, at very high levels; and experiments in mice revealed that the activity of this protein alone was sufficient to cause the disease. A drug company then synthesized an inhibitor of this protein, and a team of university and industry investigators showed in both cell culture experiments and animal models that Bcr-Abl could be inhibited. Now, exciting new data suggest that STI-571 is effective in many patients with CML and may eventually become the therapy of choice for some of them.

Yet another example of productive collaboration has been the development of effective therapeutic strategies for HIV. In this case, the initial delineation of AIDS was the result of careful clinical observation, originally by Michael Gottlieb, an immunologist at the University of California at Los Angeles. Excellent laboratory science then led to the characterization of the virus, and a combination of clinical observation and benchwork resulted in an understanding of the changes in patients' immune systems. Moreover, while industry synthesized some of the newest and most promising anti-HIV drugs, these drugs were clinically effective only when astute physicians figured out that they needed to be used in combination—an insight originally based on the experience of doctors treating patients with tuberculosis and endocarditis.

THE MOST IMPORTANT LESSON FROM THE STATINS REMARKABLE TECHNOLOGIES, MEDICAL DISCOVERY

Lesson Two: Biology is extremely complex, and one protein can be involved in many different molecular pathways. This point is especially important to recognize as we enter the so-called postgenomic era, in which investigators from universities and industry are frenetically struggling to "annotate" the genome—to assign a biological function to the proteins encoded by each of the nearly 40,000 human genes. We cannot assume, however, that each protein will have a single, discrete function.

More likely, each protein is involved in a range of activities, which may well depend upon its location. Thus, the HMG-CoA enzymes in the liver and brain may participate in entirely different pathways. Medical scientists must realize that even for something as seemingly discrete as an enzyme, the enzyme's function—its biological "meaning"—depends on its local environment.



From the perspective of drug development, this complexity is both good and bad. First, the bad news: the fact that so many of the unanticipated effects of the statins have been clinically beneficial can be attributed to dumb luck. Often, a drug that's useful in one place may be harmful elsewhere. On the more hopeful side, once we understand how a protein functions in different contexts, it may be possible to design a drug that targets one organ—creating, for example, a statin that homes in on the brain.

Lesson Three: Drugs provide both answers and questions. Drugs are useful for basic science as well as for clinical medicine, and represent critically important biological probes. Most drugs we use now, including the statins, are designed to bind to a specific biological target, often to inactivate it. The idea of targeted drug design is relatively recent, however; historically, drugs were developed empirically, with no understanding of the actual target. Perhaps the best example is aspirin, a derivative of a natural product originally isolated from willow bark and known since the time of Hippocrates. While aspirin itself was first synthesized by Felix Hoffmann in 1897, the actual target of aspirin—the enzyme cyclooxygenase—was not defined until the 1970s.

In many cases, not only did the discovery of a drug precede the identification of its target, but also it was often the drug itself that enabled the target to be discovered and the underlying biology to be elucidated. The availability of several empirically developed diuretics in the 1950s and 1960s, for example, revolutionized kidney research and led to a profound new understanding of how the body regulates its fluid compartments.

Without knowing exactly how a substance worked, drug design was essentially a trial-and-error proposition. Typically, a medicine was initially made by purifying an existing compound—frequently from a natural source—and then tinkering with it. The analgesics codeine and morphine, for example, were isolated from the opium poppy, then later modified to produce compounds ranging from oxycodone to haloperidol. Similarly, the popular diuretics furosemide and chlorothiazide, the diabetes medication glyburide, and the antibiotic sulfamethoxazole all resulted from the chemical modification of sulfanilamide, the first antibacterial drug.

One obvious problem with this process is that it is difficult to optimize a drug when the specific target of its action is not clear. An often underappreciated secondary problem is that physicians have no way to interpret side effects; they can only collect and catalog them, and then warn patients about what to expect.

Although our emerging ability to create target-specific drugs is often represented as an advance that will reduce side effects, in many cases the problem is not the specificity of the drug, but rather the promiscuity of its target. Proteins tend to be involved in multiple pathways in multiple organs, and it is not surprising that drugs that inhibit these proteins frequently cause unintended effects throughout the body.

One unquestioned advantage of target-oriented drug development, however, will be the increased ability of physicians and scientists to interpret more intelligently a medication's side effects. Each drug represents an extremely powerful molecular probe, an important tool that the physiological

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investigator can use to develop new insights into human biology.

Consider the example of sildenafil (Viagra), initially developed as a medication for hypertension. In the first clinical trials in Wales, improved erections were an unanticipated side effect of the new drug. Not only did this clinical observation lead to the development of one of the most popular medications in the history of pharmacology, but also the knowledge of how the drug works—by inhibiting the enzyme PDE5—has now contributed significantly to research in male reproductive biology.

Another example involves the new anti-inflammatory drugs celecoxib and rofecoxib, which selectively inhibit the enzyme cyclooxygenase-2 (COX-2) and are used in treating arthritis. Intriguingly, some data now suggest that COX-2 may also play a role in the progression of certain colon cancers. The ability to target the COX-2 enzyme specifically will likely yield new insights into the natural history of this common disease, providing an invaluable tool for researchers, and ultimately, we hope, improved treatment options for patients.



Lesson Four: Medicine is pragmatic. Medical progress will require a renewed appreciation of both the limitations of biological models and the importance of empirical observation. For all the advances of the molecular age, medicine remains a pragmatic undertaking as much as it is a rational science, and important medical advances can precede knowledge of the underlying biology. In the case of the statins, patients probably benefited from the anti-inflammatory effects of these drugs long before such a mechanism was even suspected.

In a sense, this should not be a surprise. Pragmatism has long been the rule in medicine, and many new therapies were employed long before they were adequately explained. Aspirin, we have seen, is one example; Louis Pasteur's development of the first laboratory vaccine (against chicken cholera) is another. While Pasteur's vaccinations were effective, his rationale, it turns out, was entirely wrong.

A more contemporary example of an advance preceding an insight involves a promising new class of anticancer drugs, the farnesyl-transferase inhibitors. These compounds were initially developed as inhibitors of mutated versions of the Ras protein, found in some cancers. The drug proved effective in both cell-culture experiments and animal models involving Ras mutants. The surprise is that these drugs appear to work against at least some cancer cells not containing a Ras mutant. Returning to the bench to resolve this contradiction, investigators discovered that the drugs may also work by inhibiting a second protein, RhoB, now the focus of intensive investigation.

The key point here is not that initial hypotheses often need to be revised, for this is how science progresses. Rather, at issue is how scientists approach new information. Good theories can be persuasive—the reason they are adopted in the first place. "Without a theory," Pasteur said, "practice is only routine driven by habit." Yet researchers also need to keep an open mind and to remember that sometimes, even the most compelling explanations are ultimately not the correct ones—or, at least, do not provide the whole story. They must constantly fight the urge to take so much comfort in theories that they turn off their minds, and stop asking critical questions or making important observations. As DNA pioneer Francis Crick observed, "Just as important as having ideas is getting rid of them."

Lesson Five: People matter. The most important lesson from the statins may just be that, even with all of our remarkable technologies—computers, sequencing machines, MRI scanners, gene chips—medical discovery remains a fundamentally human enterprise. Frequently imperfect and often unpredictable, discovery continues to rely, as it always has, upon the collegiality, persistence, and imagination of very human investigators. Bless them. ■

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For the Love of the Game: Helping Athletes Reach Their Peak

It's not unusual for a high school student to love sports, but Marcus Elliott '97 took his commitment to an extreme. As a 16-year-old, in addition to playing football and baseball, he subscribed to—and actually read—the leading journals in exercise physiology. By age 18, he was working with athletes at the Olympic Training Center in Colorado Springs, helping coaches bridge the gap between laboratory discoveries and the process of training champion athletes. "From early on," he says, "I was interested in understanding what made one athlete better than another."

Perhaps there was something of a personal motivation as well. Elliott had been planning to play college football until he tore four ligaments in his knee. The injury had one positive result, however; his rehabilitation involved swimming and cycling, which led him to an interest in endurance sports. He went on to compete in track and cross country at the college level, then as a top amateur and professional triathlete. Participating in a range of sports provided him with a good foundation for his future work with elite athletes.

After studying physiology and biochemistry as an undergraduate, Elliott considered a doctoral program in biomechanics at MIT, but ultimately chose HMS. "I thought medical school would be a more interesting journey," he says. "But I also suspected I wouldn't practice medicine in the traditional sense. For some perverse reason, I remained interested in athletic performance." He has since worked with professional athletes and Olympic medalists in cycling, tennis, football, baseball, volleyball, water polo, soccer, rugby, speed skating, and swimming, as well as track athletes who run races ranging from 100-meter sprints to marathons.

One of his earliest success stories came from his work with triathlete Mark Allen, the summer before entering HMS. Allen had won the Ironman Triathlon several times and was favored to win again, but had broken his collarbone in a bike crash. His arm was in a splint, he couldn't run, ride, or swim—and the race was only two months away. Elliott put together a creative conditioning program, using a stationary bike, an elliptical trainer, and a rigorous, unconventional plyometrics power training regimen. The program helped Allen get in good enough condition to participate in the race and place at the top, even though he hadn't done any actual running, biking, or swimming for two months.



PHOTO: NADINE AURHAMMER/KUSCHIG ADVENTURE PHOTOGRAPHY

CRITICAL CONDITIONING: By applying science to sports, Marcus Elliott helps professional athletes and Olympic medalists gain a competitive edge.

Model Student

Just as he wasn't an average high schooler, Elliott wasn't a typical medical school student. To defray the cost of HMS tuition, he worked part time for Ford Models. On one of his most memorable days, he spent nearly 12 hours in an operating room, assisting with the resection of a tumor, then hopped on a plane, arriving in New York just in time to walk down the runway at a Versace show. His fellow models were just as surprised to see him rushing in late as his medical colleagues would have been had they known where he was headed after a day in surgery.

Elliott's two lives did sometimes collide, however. At least half a dozen times, classmates or faculty would show up with a photo, sometimes on morning rounds, and ask for an explanation. There was also the time in 1996 when he was named *Cosmopolitan's* Hunk of the Month. "It's surprising how many otherwise intelligent medical students and physicians read *Cosmo*," he says.

After medical school, Elliott stopped leading a double life and focused on the work that had fascinated him all along: using his scientific background to develop the best conditioning programs for elite athletes. In his second year of med-



IRON MAN: When designing creative conditioning programs, Elliott draws upon his extensive experience as a triathlete.

ical school, he developed a training regimen for the New England Patriots. He continued moving away from individual training toward work with teams and sports organizations, and founded his own company, Peak Performance and Health, based in Santa Barbara, California.

Although he participates in a variety of athletic activities, Elliott still often finds himself working in sports about which he knows little. Before entering HMS, he had designed a conditioning program for the country's best track cycling team in preparation for the Barcelona Olympics, even though he'd never actually seen a track cycling race. In a way, he says, this lack of specialization is an advantage, as coaches don't feel threatened that he may overstep his bounds and begin giving advice on tactics and strategy. "Coaches know I'm not planning to coach the athletes," Elliott says. "I'm there to help the athletes realize their physical potential, and the coaches know they're in the driver's seat."

Whether he's working with teams or individuals, sprinters or power lifters, cyclists or volleyball players, Elliott's approach is essentially the same. He tries to understand what's necessary to make an individual athlete successful, and tailors programs that will optimize their performance. Over the past 12 to 15 years, he says, significant research on nutrition has become available, which he incorporates into the programs he develops. "I see my role as being on top of all the latest scientific knowledge," he explains, "and using it, with a touch of art, to develop personalized, effective programs."

An Ounce of Prevention

Elliott has remained consistently excited about the potential of applying science to the conditioning programs of elite and amateur athletes alike. In addition to his work with the Olympic Training Center, the National Football League, and other sports organizations, he and his friend Dan Gebow, who holds a doctorate in cancer biology from the Harvard School of Public Health, have put together a database of information on preventive medicine, including a software application that will allow users to obtain personalized recommendations.

"This project sprang directly from the intersection of my interest in athletic performance and my HMS training," Elliott explains. "It turns out that much of what I've focused on in athletes—conditioning, nutrition, biomechanics—is a foundation for laypeople to reduce their risk of most of the chronic diseases of the twenty-first century."

"I'd like to put a call out to individuals in the Harvard community who have ideas about implementing these programs," he continues. "We've built personalized prevention applications that could have great value for people. We just need to get the programs in front of them."

Elliott plans to use the database and develop other tools that will make "personal training" more sophisticated. In fact, he doesn't refer to himself as a personal trainer. Because his specialty is a unique one, he goes by a number of titles, from "conditioning specialist" to "physician specializing in the performance and care of elite athletes." He admits that, "There are few people with my combination of interests and background."

Despite the value of disseminating information about exercise physiology to the general public, professional athletes are the ones most in need of conditioning advice to help keep them in top form and injury-free. Working with Bertram Zarins, chief of the Sports Medicine Service at Massachusetts General Hospital and professor of orthopedic surgery at HMS, Elliott has been involved in some of the first research on injury patterns among professional athletes. A recent paper analyzes the more than 2,000 hamstring injuries that have occurred in the NFL over the past 12 years and suggests prevention strategies. Elliott recently received a grant to study athletes' risk of reinjury after they miss playing time. As little as one week of downtime, he says, can be dangerous to athletes competing at the highest level.

What Elliott enjoys most about working with athletes of this caliber is their unfailing devotion to their sports. "It's hard to find a group of people as dedicated to a single goal as professional athletes," he says admiringly. "Doctors can give their patients good advice, but if the motivation isn't there, the treatment won't be successful. When you understand the physiologic systems you're working with and you have the trust of elite athletes, they're extremely motivated to implement your suggestions. That almost always results in wins." ■

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